—THE—

Therapeutic Gazette

WHOLE SERIES, VOL. XXVII. DETROIT, MICH., NOVEMBER 15, 1903. THIRD SERIES, VOL. XIX, NO. 11.

CONTENTS.

Original Communications.

A Brief Consideration of the Treatment of Puerperal Eclampsia. By Joseph W. Irwin, M D 721
Medicinal Treatment of Gall-stones. By H. Richardson, M.D. 723
The Treatment of Angina Pectoris. By William F. Waugh, M.D. 724
Treatment of Influenza, with a View to the Preventive Treatment of Pneumonia. By F. H. Brandt, M.D. 725
The Structures Taking Part in Menstruation. By E. E. Montgomery, M.D 727
Tubal Menstruation — A Case History. By P. Brooke Bland, M.D. 731

Leading Articles.

The Treatment of Menstrual Disorders 734
The Use of X-rays in the Treatment of Leukemia 735
The Near Relationship of Pathology in Therapeutics 736
Poisons and Autopsies 737
Surgery of the Paralyses of Children 737
The Surgical Treatment of the Chronic Inflammation of the Large Intestine 741

Reports on Therapeutic Progress.

Typhoid Fever in Infancy and Childhood 733
The Action of Arsenic on the Bone-marrow of Man and Animals 742
Treatment of Eclampsia 742
Treatment of Mucomembranous Colitis 743
Potassium Permanganate in the Treatment of Lupus 745
Therapeutic Suggestions in Diphtheria 746
An Attempt to Obtain a Uniformly Active, Sterile, and Non-irritating Preparation of Digitalis for Subcutaneous Internal Administration 747
Salivary Digestion in the Stomach 747
On the Therapeutic Effects of the Salts of Radium 748
Bath Treatment of Typhoid Fever 750
The Diuretic Value of Salt-solution Enemata, Especially After Renal Operations 751
A Note on the Treatment of Chorea by Ergot of Rye 752
Chloretone in Seasickness 753
Studies on the Action of Alcohol in Disease, Especially upon the Circulation 753
The Therapy of Gall-stones 754
Fulminating Purpura Hemorrhagica Treated by Adrenalin 754
The Treatment of Agitation and Insomnia in Mental and Nervous Diseases 754
Lemons in Purpura Hemorrhagica 755
Oberst's Method of Anesthesia 755
Acid Phosphate of Sodium and Adrenalin in Vesical Disease 755
The Paroxysms of Whooping-cough Treated by Pulling the Lower Jaw Downward and Forward 757
The Prophylaxis of Gonorrheal Ophthalmia 757
Concerning Some Points in the Treatment of Typhoid Fever 759
Typhoid Fever 760
Best Methods to Prevent Hydrophobia 761
The Dietary Treatment of Constipation 761
Tropical Malaria and its Prophylaxis 763
The Use of the X-rays in the Treatment of Several Diseases 765
Cancer of the Prostate 767
Acetozone in Atrophic Rhinitis 767
X-ray Treatment of Acne 767
Dangers of Plugging in Epistaxis 767
Hypertrophy of the Synovial Fringes of the Knee-joint 768
Venous Stasis as a Therapeutic Agent 770
Treatment of Brachial Neuralgia 770
The Value of Lumbar Puncture 771
Thymus Enlargement Causing Sudden Death 771
"Pressure-pouch" of the Esophagus 771
The Present Status of the Surgery of the Prostate Gland 772
Decapsulation of the Kidney for the Cure of Bright's Disease 772
Surgical Treatment of General Purulent Peritonitis 773
Subparietal Injuries of the Kidney 773
Remote Results of Prostatectomy 775
Epidural Injections in Urology 775
Oberst's Method of Inducing Local Anesthesia 775
Forearm Fixation in Infants 776
The Occlusion of the Greater Part of the Intestine 776
The Curability of Vesical Tuberculosis 776
Ulceration of the Stomach Treated by Nerve Section 777
Some Causes of Failure to Cure Gall-stones 777
Gastrostomy in Combination with Gastroenterostomy for Pyloric Obstruction 778
Local Analgesia by Adrenalin-Eucaine 778
Congenital Phimosis—New Operation 779
Puerperal Sepsis—Operative Treatment 779
Digital Nephropexy 780
Enterostomy for Functional Paralysis of the Intestines 780
The Proper Perineal Prostatectomy Incision 781
Surgery of the Stomach 782

Reviews 784

Correspondence.

London Letter 788
Paris Letter 789
Hamburg Letter 791

Original Communications.

A BRIEF CONSIDERATION OF THE TREATMENT OF PUERPERAL ECLAMPSIA.

BY JOSEPH W. IRWIN, M.D.,
Louisville, Kentucky.

In 1874 I saw my first case of puerperal convulsions. It was one to which I was called in consultation. Being a young man and a graduate of an eastern school, it was expected that I would know something about this troublesome disease that had carried off a great many people. During my attendance at college an old professor there who had a great amount of common sense and a wonderful amount of success, and above all a practical knowledge of pathological conditions, when it came to the question of saving life, in speaking of puerperal convulsions said: "Administer chloroform, control the convulsions with chloroform, and inject morphine. Others will tell you that it stops elimination, but I tell you never mind the elimination, but save the life of your patient." On that principle in my first case I advised the injection of two-thirds of a grain of morphine hypodermically, and at the next step emptied the gravid uterus. The patient received the morphine, chloroform controlling the convulsions until the morphine had had time to take effect, and then one hour later the gravid uterus was emptied. There was one slight convulsion afterward. There was no necessity for

repeating the morphine, and the patient went on to a safe recovery.

Since that time I have seen twenty-five cases of puerperal convulsions, perhaps double that number, the great majority of them occurring during pregnancy, before and during labor. I have seen but two cases where convulsions came on after labor. In every case I have seen, especially in my own practice, I have not hesitated to administer morphine in quantity sufficient to relax the patient and relieve the convulsions. I have given it in one-half and even three-quarters of a grain doses where I thought it was needed. I do not recall a case where I have had to administer this dose oftener than every two or three hours. In the meantime the convulsions were controlled by chloroform.

Touching the question as to the cause of puerperal convulsions. Since that day I have followed the subject closely, and I have seen the uric acid theory crumble to the ground in the hands of such men as Playfair and of eminent men in our own country, and I have seen the worst cases of puerperal eclampsia occurring where there was no defect in elimination from the kidney. Then why should we hesitate to administer a remedy that gives speedy relief? In the treatment of a disease like puerperal eclampsia we must use a remedy that acts promptly.

In 1887 the first light was thrown on this subject by two German observers, Traube and Rosenstein. They made a series of autopsies, and found that patients who died of puerperal eclampsia suffered from cerebral anemia, and that owing to the cerebral anemia they found defective elimination, insufficiency in the kidney, but not always dependent upon urea, it might be dependent upon other things. They supposed defective elimination was the cause of the convulsions.

In 1888 Dr. Angus MacDonald, of Edinburgh, went into the same line of research, and found not only cerebral anemia but cerebrospinal anemia. He thought convulsions were not due so much to defective elimination as to irritation of the vasomotor system.

If these facts are true, then why should we withhold morphine for the relief of this trouble, not for its cure, because every one recognizes that emptying the gravid uterus is the prime move in the cure of puerperal eclampsia? Along these lines I have treated all the cases that have come under my observation.

In 1889 new light was thrown upon the subject as to the cause of puerperal eclampsia. An observer named Emil Blanc attended a pregnant woman who was suffering from puerperal eclampsia, and while she was in an eclamptic attack took 45/100 cubic centimeter of her blood and injected it into a pregnant rabbit; in a few hours the rabbit dropped two or three of her young dead, and in twelve hours she herself died in convulsions. He concluded therefore that the cause was in the blood, that it was not in the brain, and not in the kidney. Two other observers confirmed his observations afterward. In view of these facts why should we withhold the administration of opium?

In eighty per cent of cases Traube and Rosenstein claimed there was defective elimination through the kidney; in the other twenty per cent they did not ascertain the cause—they did not know what it was. Other observers have confirmed the view of Emil Blanc that the microorganism found in the blood was the cause of puerperal eclampsia. Since that day my views have been materially strengthened. I have resorted invariably to the administration of chloroform for the relief of the eclamptic attack, for more permanent relief I have administered morphine, and then I have emptied the gravid uterus. Every man who treats eclampsia to-day, every authority who attends cases of midwifery to-day, claims that it does no harm to administer morphine after delivery, and if this is true why not give it before delivery? This is a step in advance. It has been found that twin pregnancy is one of the great causes of eclampsia. The researches of MacDonald and Traube and Rosenstein show that anemia is much greater in women in twin pregnancies. We know that women who bear two children are more anemic than those who bear one.

If it is true that the cause of puerperal eclampsia is bacterial, then why should we consider the question of elimination when it is often only a question of fifteen or twenty minutes in which to decide whether the patient is to live or not? Just as soon as you can administer a dose of morphine, just so soon is your patient rendered safe. This gives you time to

empty the gravid uterus; then if there is anything to eliminate, proceed. For this purpose I have administered elaterium in one-fourth-grain doses. In less than twelve minutes after its administration I have seen the bowels act. I have seen a patient pass almost a gallon of yellowish water after the administration of one-fourth grain of elaterium.

When you load the rectum with chloral I think you are making a great mistake. If you administer into the rectum a drachm of chloral you do not know how much is absorbed into the system; your patient is in a semicomatose condition, and if too much should be absorbed you have no antidote, you have no remedy with which to release the patient from impending death.

The way to treat these cases, and you will find that the future will make it so, is first to administer chloroform for prompt relief, then morphine for greater relief, and after you have emptied the gravid uterus treat the case as the indications may present themselves. I have been in practice twenty-eight years and have seen a great many cases of puerperal eclampsia; they have all been treated along the lines I have mentioned, and I have never had a death from eclampsia.

MEDICINAL TREATMENT OF GALL-STONES.

By H. Richardson, M.D.,
Late Pathologist to Mount Hope Retreat, and Demonstrator of Physiological Chemistry at the University of Maryland, Baltimore.

The theories of the formation of gall-stones are still exercising the pathologists, while the problem of their solution *in situ* remains unsolved by the clinician, who is turning his cases over to the surgeon.

Cholesterine gall-stones appear to be the result of an infection, producing an inflammation of the walls of the gall-bladder, and a reduction in the total solids of the bile, especially of the bile acids, with an increase of cholesterine.

Herter and Wakeman have found that they produced the same results by injecting mercuric chloride into the gall-bladder of starving dogs, showing that bacterial infection is not necessary to produce a condition of bile favorable to the formation of gall-stones.

The questions arise, why should an inflammatory condition of the gall-bladder reduce the quantity of bile acids, and in what part of the organism are the bile acids formed? Crofton has produced both bilirubin and glycocholic acid by the action of hemoglobin in the presence of glycogen or glucose and trypsin; he has also shown that the bile acids exist normally in the blood in very small quantities. It seems improbable that the bile acids should be formed in the gall-bladder, it being more likely that they are formed in the liver or in the blood in very small quantities. As they are reabsorbed from the intestinal tract a very small amount is required to keep up the quantity necessary under normal conditions to hold the cholesterine and bile pigments in solution.

The liver contains the bile acids, at least that quantity which is reabsorbed from the intestine, and it is possible that the newly formed acids are excreted into the gall-bladder from its mucous membrane, so that any inflammation of that membrane prevents their excretion. If this is so, inflammation of the gall-bladder would gradually reduce the quantity of bile acids in the bile, only that which was reabsorbed from the intestine being available, which would gradually decrease in quantity.

Whatever may be the method by which the bile acids are reduced in quantity in gall-stone, the fact is patent that if there is a sufficient quantity of glycocholate in the bile, the cholesterine will be held in solution and gall-stones will not be formed. Austin (*Journal of Medical Research*, 1902) analyzed the bile from fistulas, the result of operations for gall-stones when there was complete occlusion of the duct. In three analyses he obtained the following results:

	Total solids.	Mucin.	Water.	Cholalic acid.	Cholesterine.	Lecithin.
"A"	15.28	1.66	984.7	0.061	0.278	0.710
"B"	14.19	.....	985.8	0.092	0.243	0.736
"C"	10.68	1.32	986.3	0.048	0.323	Trace.

Showing that cholalic acid is from one-third to one-eighth of the cholesterine, while according to Hammersten and others, normal bile contains twelve to thirteen times as much cholalic acid as cholesterine. It is also worthy of note that the mucin is only one-fourth the normal amount, showing that the mucous membrane of the gall-bladder was affected. The above analyses of Austin seem to prove conclusively that cholesterine gall-

stones are the result of a deficiency of glycocholic acid.

It naturally suggests itself that the prophylaxis of gall-stones is the administration of glycocholate of soda by the mouth, since it will then be absorbed from the intestine, entering the gall-bladder from the liver, and hold the cholesterine in solution. The question as to the possibility of dissolving gall-stones *in situ* has recently been investigated by Vaughan Harley and Wakelin Barratt (*Journal of Physiology*, 1903). They inserted large gall-stones into the gall-bladders of healthy dogs with antiseptic precautions, and found that in periods from six months to one year the gall-stones had entirely disappeared, showing that the healthy bile of the dog is capable of dissolving cholesterine stones. They also inserted gall-stones into the gall-bladder, and at the same time produced cholecystitis, with the result that the gall-stones remained unaltered. Unfortunately no analysis of the bile was made in these cases, but from the work of Herter and Wakeman and the analyses of Austin it seems certain that in the cases where cholecystitis was produced there was a deficiency of bile acids, as in no other way is it possible to explain the solution of the stones in the normal bladder and their remaining undissolved when cholecystitis was present.

From the above experiments it is evidet that by the administration of glycocholate of soda it must be possible to dissolve gall-stones in the bladder, and even when cholecystitis is present glycocholate of soda is indicated not only as a prophylactic but as a solvent for stones already present, and that in those cases only in which there is occlusion of the gall-duct is surgical interference permissible.

THE TREATMENT OF ANGINA PECTORIS.

By William F. Waugh, M.D.,
Chicago, Ill.

This distressing and alarming malady appears to be increasing in frequency; at least reports of its occurrence come to me in increasing number. It is usually associated with some organic affection of the heart or of the thoracic vessels, no one of which has been found constantly associated with angina pectoris, yet there is not one with which these seizures have not been recorded. Toussaint, however, asserts that this is often a pure neurosis, and that no organic lesion is found on autopsy.

Be this as it may, angina pectoris is one of the most frightful of seizures. The attack comes suddenly; the patient is seized with agonizing, cramp-like pains in the region of the heart, his face is white, shrunken, the features expressive of the agony he suffers. The body is bathed in cold sweat, the voice lost or sunk to a husky whisper. The universal description he gives of the sensation is that of an iron hand crushing his heart in its relentless grasp. The pain may follow the course of the intercosto-humeral nerve to the left shoulder, and down the inner aspect of the left arm. The pulse is feeble, thready, or scarcely discernible. The condition is one of imminent danger, and many cases end in death during the paroxysm.

The treatment of the paroxysm is simple. Glonoin most quickly unlocks the spasm and returns the blood to the skin. Give 1-250 grain, and repeat every minute until relief ensues, and the face flushes. This effect is deepened and prolonged by giving atropine 1-250 grain every ten minutes till the mouth begins to dry. The patient may then rest assured that there will be no further attack as long as this effect endures. It may be indefinitely prolonged by repeating the atropine whenever the dryness of the mouth subsides. While any salt of atropine will answer, it has seemed to the writer that a speedier action results from the valerianate.

It we accept the theory—easily comprehended on a little consideration—that spasm betokens weakness and not an excess of strength, it will be readily admitted that the addition of strychnine to the above remedies is advisable. Spasm precedes the extinction of the function of a nerve; it evidences a loss of control over it, as the jactitations of chorea signify a loss of control over the movements of the affected muscles. Strengthen this control by moderate physiological doses of strychnine and the spasms cease. Give 1-130 grain of any salt, best the valerianate, and repeat every fifteen to thirty minutes until the normal tonicity of the pulse has been restored.

The patient is suffering cruelly, danger-

ously, and in the absence of the remedies advised it is well to recollect that any strong stimulant at hand may give relief, and the best is the quickest to be had. Alcohol in any shape, and volatile oil, ammonia, pepper, ginger, or any other spice, camphor, ether in any form—surely it must be a desert where none of these can be had. Give as hot as can be swallowed and in concentration. Anything that will bring the tears to the eyes will break the attack and save the patient's life for the time.

And what then?

There is too little attention given to the interval treatment of this malady, the violence of the paroxysm concentrating the mind upon it exclusively. Much may be done in the way of regulating the personal hygiene, keeping the alimentary canal clear and aseptic, fitting the diet to the needs and the digestive capacity, prescribing exercise, baths, etc., and proscribing overwork and worry—in a word, the most careful elaboration of the habits is needed and will richly repay one.

Structural lesions of the heart are to some extent amenable to treatment. Rheumatic, syphilitic, and other deposits waste away under the influence of such remedies as the following: Mercury biniodide gr. 1-20, iodoform gr. 1-2, arsenic iodide gr. 1-67, and phytolaccin or stillingin gr. 1-2, to be taken before each meal and on going to bed, and continued for months. The arsenic exerts an action upon the nutrition of the heart that would not be believed by those who give it in maximal doses for a week or two only. Uric acid manifestations likewise subside under the influence of colchicine. This is best given in a single dose at bedtime, as it requires twelve hours for full action. Begin with 1-60 grain and gradually increase the dose until it causes slight nausea or catharsis in the morning; then continue as long as may be requisite. Indigestion, flatulence, constipation, worry and emotion, sudden strains and muscular fatigue, all that may give rise to a paroxysm of angina, are to be avoided sedulously. Sexual intercourse is specially perilous. The patient should sleep on the ground floor if there is no elevator to carry him upstairs. A week's use of zinc phosphide, 1-6 grain four times a day, is of great use in improving the nutrition of the nervous centers. This may be repeated one week in each month.

TREATMENT OF INFLUENZA, WITH A VIEW TO THE PREVENTIVE TREATMENT OF PNEUMONIA.

By F. H. Brandt, M.D.,
Chicago, Ill.

There is no disease from which mortality has been so high as pneumonia. Just how many have been what we term "frank pneumonia" is difficult to say, but it is not unreasonable to assume that the greater portion have been preceded by symptoms, manifested by acute rhinitis, acute tonsillitis, pharyngitis, laryngitis, and pleuritis. Influenza shows itself in many different forms; usually three great divisions are made, yet we could make many subdivisions. How many times do we see patients complaining of a slight cold, which on inspection shows itself beginning in nose, throat, etc. It will not always do to say the patient has a tonsillitis, since it is pretty well known that the crypts in the tonsils serve as the entrance of many infectious diseases. For this reason the tonsils should always be examined. Naturally this limits itself only to the respiratory form of influenza, which however is most frequently seen.

Having made a culture of the tonsillar secretion, preferably on blood serum, kept at body temperature, we can usually have a very satisfactory smear in four to six hours. Colonies on serum show themselves in slightly transparent, drop-like spots; these are without color, but they stain easily by methylene blue. Oftentimes we can make quite a satisfactory smear directly from the parts without resorting to a culture.

Before going into the treatment it will be well to mention the main points in the symptomatology, principally the respiratory form, which we see most frequently.

In the beginning evidence of general infection, which is common to most of the infectious diseases, is seen, such as headache, pains in back and extremities, slight nausea, and sometimes vomiting; then the special symptoms, usually hyperemia of the upper respiratory passages, congestion often being followed by a catarrhal inflammation. Not infrequently do we see a very slight exudate on the tonsils, this being whitish-gray in color; it usually covers the greater part of tonsils, to which it is very firmly attached. Bronchitis is usually present. Dry pleuritis in varying

degree is seen in nearly all cases and should not be classed under the complications, as it is one of the earliest symptoms to appear. There is nothing typical about the temperature curve, yet in the majority of cases we have a sudden rise as high as 104° and more, and the fever has a tendency to persist until it falls gradually.

1. *Hygienic Treatment.*—It is unnecessary to go into details; we should allow plenty of fresh air, but should not endanger the patient by undue exposure, since we have in most cases pleurisy present and a varying amount of pneumonitis. We should allow the patient to sit up at an angle of about 40 degrees; this has for its advantages freer respiratory excursions and to a certain extent prevents or limits consolidations. The patient's mind is relieved by allowing the privilege. Again, the pleuritic pain is much relieved, especially if a binder or adhesive straps are tightly placed around the chest. One should insist that all expectorated material be collected in vessels filled with antiseptic fluid, as oftentimes a whole family will suffer from the disease by neglecting these directions.

2. *Dietetic.*—This should be principally liquids, such as milk, broths, gruels, and soft-boiled eggs. Plenty of water should be given.

3. *Medical.*—At the outset it is well to give calomel followed by a saline cathartic.

For the nasal passages and mouth we should use some mild antiseptic solution, either in form of a spray or douche, for it is essential that these parts should be kept clean.

For internal medication I wish to particularly emphasize the value of the salicylates; in my short experience they have almost acted as a specific, nearly as pronouncedly so as in rheumatism. I have found it advantageous not to give large but rather frequent doses, as not infrequently renal irritation is seen from too large dosage. In regard to the form of salicylates, sodium salicylate has been found most effectual in doses of five grains, according to the case and age, every two, three, or four hours. In cases with considerable pyrexia, phenacetine in combination has been found beneficial. Again, when there is much pleuritic involvement potassium citrate or liquor ammonii acetatis has been given with good result. Codeine has been given in severe pleuritic pains. It may be asked, how do the salicylates act? This unfortunately is a question hard to answer. If one compares the action of the salicylates in rheumatism and influenza, these two diseases have much in common. Can it be that the infection is similar?

In the action of the salicylates we must first think of their antiseptic properties; this is proven experimentally. Of course, in the sodium preparation we have somewhat less antiseptic property, but even here the sodium salicylate is changed in the blood into salicylic acid, which later unites with glycocoll to form salicyluric acid, and is excreted as such. Secondly, the salicylates are strongly diaphoretic and diuretic; in this way the system is relieved of a great part of the toxins, as is evidenced by fall of temperature and lessening of the pains.

Next we will consider the pneumonic complication. How often do we see small streaks of blood about the second or third day in influenza, to be followed only next day, or later, by an area of consolidation. The nature of this infiltration may be purely the result of the influenza infection, but undoubtedly more often it is a secondary infection by the pneumococci. These diplococci being constantly present in the mouth, or even in the lungs, take advantage of the adjacent pneumonitis in pleurisy and consequently find a favorable condition in which to implant themselves. The lung involvements usually have a tendency to end by lysis. Having thus briefly considered the pneumonic complication, what can we do after we have such a condition? The following cases illustrate this matter:

Case I.—Boy eleven years old. History of cold; slight chills in morning. Temperature in evening 103.4° F.; pulse 115; face slightly congested; tongue coated; tonsils slightly swollen, with a very thin film over tonsils and fauces; slight cough; sputum blood-tinged; distinct pleuritic rub; lungs showed no areas of consolidation; some bronchitis; heart normal in outline; no valvular trouble. Abdomen slightly distended; no eruption; spleen distinctly enlarged; liver not palpable; culture of throat gave a practically pure culture of bacilli of influenza.

Blood: Widal negative; leucocyte count was 23,000.

Urine: Diazo negative; small trace of albumin.

Patient was given sodium salicylate and potassium citrate, of each 5 grains, phenacetine 3 grains, in a capsule every four hours. With this codeine ¼ grain every six hours was given.

After eight hours the patient felt easy, the cough was less frequent, the pleuritic rub about the same, but nervous symptoms were much less. The temperature fell rapidly, and after four days was normal.

CASE II.—Miss M. C., aged sixteen. She had been under the care of another physician for a week. The history which I obtained went as follows: She was attacked by a cold, first in the nose. The patient had had repeated chills followed by high temperature. She had a very distressing and annoying cough, and the sputum showed blood. An examination at sixth day of disease revealed that the patient was very anemic, sitting up in bed, breathing with difficulty. The temperature was 104.2° F. at 9 A.M.; her pulse 160, very weak and irregular; the tongue was heavily coated. In the chest there was a marked pleuritic rub, but no fluid was in the pleural cavities. The lungs on both sides showed consolidation of the lower lobes, extending somewhat higher on the right; distinct bronchial breathing was heard, with subcrepitant râles. The heart was somewhat large, but there were no murmurs.

The patient received the following medication:

℞ Sodii salicylatis, 5 grains;
Potassii citratis, 4 grains;
Phenacetini, 2 grains.

One capsule every three hours.

℞ Ammonia carb., 5 grains;
Codeinæ sulph., ¼ grain.

One capsule every five hours.

She also received strychnine sulphate 1/30 grain, and tincture of digitalis 10 minims every four hours, with whiskey at irregular intervals.

The temperature, which had been about stationary for four days, came down to 101.2° the same evening. The pulse fell to 120, and the patient felt much easier. Next morning the temperature again went up to 103°, but was lower in the evening (100.5°).

The tonsils were clean by the fourth day, and the pleurisy less, but the lung condition persisted for about two weeks. The temperature during this time was very irregular, but fell gradually. The pulse became more regular, but was weak and rather fast, and later came down to about normal.

As to the question of hydrotherapy, this seems of little value in influenza.

Not infrequently we find patients who cannot tolerate the salicylates; here we can very well substitute with aspirin, which in action is almost similar to that of the salicylates. Salipyrin may also be used.

The after-treatment is principally that of building up the system. It is necessary to bring up the red blood cells as well as the hemoglobin. The general tonics and iron preparations are indicated.

THE STRUCTURES TAKING PART IN MENSTRUATION.[1]

BY E. E. MONTGOMERY, M.D.,
Professor of Gynecology in the Jefferson Medical College.

When upon invitation of your president less than a week ago I gave him the above title, I did not realize how extensive an undertaking I was projecting. To properly discuss this subject requires the consideration of a number of other questions. The varieties of its manifestation, the causes of its periodical production, all are involved in the consideration of the structures which are likely to take part in the process. The description of the menstrual process would seem at first glance to be a very simple subject, but when we consider it in its intimate relation with the reproductive processes of the woman, it becomes exceedingly complex.

Menstruation may be defined as a periodical discharge of bloody fluid which occurs at monthly intervals and continues from two to eight days. This discharge consists of a dark, bloody fluid, thin and slimy in character, alkaline in reaction, and contains, as shown by the microscope, blood-corpuscles, leucocytes, epithelium, and stroma. The normal menstruation is not clotted, due to the admixture with it of the secretion of the glands of the uterus and cervix. In some cases clots

[1]Read before the Obstetrical Society of Philadelphia, Oct. 1, 1903.

are found. This is due to the excessive flow or defective secretion. The average period is twenty-eight days from the advent of one period to the beginning of the next, although this is by no means the rule in all individuals, or even in the same individual, as the intervals may be either shorter or longer. The duration of the discharge varies greatly in different individuals. In one person the discharge may be very slight, only sufficient to slightly soil the clothing, even a trace of blood, while in another the bleeding may be profuse, almost amounting to a hemorrhage. Either very scant or excessive flow must be considered as abnormal. From two to six ounces may be considered as a normal amount. A greater quantity is a severe drain upon the patient, and should be considered as indication for investigation and treatment.

The menstrual flow involves between thirty and thirty-five years of the life of the individual, that which is known as the active sexual life, beginning from the thirteenth to the fifteenth year and continuing to the forty-fifth to the forty-eighth. The establishment of the menstruation is known as puberty, its cessation as the menopause. Each of these is regarded as a critical period in the life of the individual. With the advent of each period the individual experiences a certain amount of discomfort, irritability, excessive nervous irritation, sensation of fulness, weight in the pelvis, increased blood tension, slight elevation of temperature, frequently disturbed mental action, increased emotion, in some cases engorgement or swelling of the thyroid gland, enlargement of the spleen, fulness of the breasts, aching and distress in the regions of the ovaries, and a general sensation of exhilaration. With the advent of the flow there follows depression, languor, malaise, disinclination for great exertion, dependent of course upon the amount of discharge. In many patients we will find a tendency to the occurrence of gastro-intestinal disturbance, formation of toxins, a condition of autointoxication, attacks of migraine, aggravation of any nervous derangement, as chorea, epilepsy, and delusions. These conditions are frequently so marked and so constantly associated with menstruation as to lead the family, and not infrequently the physician, to believe that the nervous manifestations are the result of disordered conditions of the genital organs.

The primary advent of the menstruation, known as puberty, is described as precocious when it occurs at an earlier period than that which we have already mentioned, from the thirteenth to the fifteenth years. It is a well recognized fact that girls raised in hot climates mature earlier and the function becomes established at an earlier age than in those of the colder regions; thus, nearer the equator it occurs as early as eleven years, in the temperate zone from thirteen to fifteen, in the colder regions as late as eighteen years. Race is also recognized as an important factor in the establishment of this function. Thus the Jewish maiden matures earlier than the Russian girl, though in the same country. Environment is also an important factor. The country girl matures later than her sister of the city. Numerous cases have been reported in which a discharge took place from the genital tract shortly after the birth of the child, but these are not necessarily cases of menstruation. Several cases have been reported, however, in which menstruation began at the end of the first year after birth and continued regularly thereafter, one of these children giving birth to a child at the age of nine. In some of these cases of precocious puberty they have subsequently perished from tuberculosis, the irritation of which may probably have been the cause of the early development. A case of protracted puberty is one in which the menstruation does not occur until the eighteenth year or later. The menopause may be premature or delayed; premature when it takes place prior to the fortieth year; delayed when it is protracted beyond the fiftieth. As a general rule the earlier the puberty the sooner the menopause follows.

A discharge of blood taking place from other portions of the body than the genital tract and occurring periodically is described as vicarious menstruation. This may occur at the same time as the menstrual flow, or may take its place. We have already seen that the menstruation is preceded by increased vessel tension. Weak vessels in any portion of the body under such circumstances may rupture, and where the discharge of blood is sufficient to relieve the tension, menstrua-

tion may not take place. This is without question the explanation of the occurrence of vicarious menstruation. It most frequently occurs in the form of epistaxis. It may be present as bleeding from hemorrhoids, from a diseased mucous membrane, and one case is reported in which it took place for nearly two years from the nipples without there having been established the flow from the genital tract.

The cause of this periodical disturbance has interested philosophers and students of all ages, and we have a very great variety of theories to explain its occurrence: The uterine congestion of Hippocrates; the lunar theory of Aristotle and Eristratus; the mechanical of Galen; the chemical or fermentative as suggested by the Hebraic sanitary laws. Pliny, indeed, regarded the discharge of the menstruating woman as most baneful. He asserted that the odor of menstrual blood or contact with it caused new wine to become sour, seeds to become sterile, buds of trees to die, fruit to fall off withered, young plants destroyed, iron affected, and the beauty of ivory effaced. The law of Moses directed that the woman during her period and seven days afterward should be considered unclean; that any one who touched her clothing or a chair upon which she sat should be required to undergo purification. Such views do not seem to have been completely eradicated, as we find some operators directing that a menstruating nurse shall not take part in any operative procedure. Other theorists assert that menstruation is not an inherent function of the woman, but is acquired by heredity or custom, that it did not occur in the primeval existence or among savage tribes, and its occurrence is due to the necessity of the individual in civilization to restrain her sexual instincts, which produce irritation of the uterus, and hemorrhagic crises follow. The falsity of such a theory, however, is demonstrated when we find that menstruation does occur among the savages; and that not only women of all races menstruate, but the process occurs in the apes and baboons who assume the erect position, and we can hardly admit that woman, even in her primitive state, occupied a lower platform of evolution than this class of animals.

The occurrence of Graafian follicles was recognized by de Graaf in 1665. The existence of the ovule, however, was not discovered until 1827 by De Baer. Coste described spontaneous ovulation in 1837. Negrier in lectures in 1832 attributed menstruation to this act, but Gendrin in 1840 was the first to assert the dependence of menstruation upon ovulation. One of the modern theories has been that the maturing of the Graafian follicle led to the congestion and swelling of the ovary, increase in its vessels, thinning of the follicle toward the surface, and finally its rupture and escape. The reflex influence of the maturing follicle gave rise to the congestion of the pelvis, the increased blood-pressure, and all the symptoms associated with menstruation. The increase in the circulation of the pelvis caused the thickening of the mucous membrane, proliferation of the epithelial cells and glands, fatty change, infiltration of the leucocytes, and finally rupture of the vessels; the escape of or shedding of the epithelium, extensive desquamation, according to Williams, even a loss of a large part of the mucous membrane of the uterine cavity. This discharge was followed by the restoration of the loss of structure in the surface epithelium by cell division, or the process of mitosis in the gland epithelium, so that by the tenth to the twelfth day following the menstruation the mucous membrane has been completely regenerated; that consequently menstruation was dependent upon ovulation. Investigations of Leopold and others demonstrate, however, that ovulation could take place independently of menstruation, and occurred in the intermenstrual intervals. That ovulation does take place independent of menstruation is evident from the fact that women have become pregnant prior to the establishment of the menstrual flow. Indeed, cases are upon record in which a woman has given birth to several children without ever having menstruated. It is demonstrated, also, that ovulation takes place prior to the birth of the child in fetal life, and the first year after birth ovulation has occurred to such a degree that the number of ova are very greatly decreased, that in the second year a much less number occurs, and after that to the period of puberty ovulation is infrequent. It takes place also after the apparent occurrence of the climacteric, as indicated by women finding themselves pregnant some length of

time after they have ceased to menstruate. It takes place also in women during the period of lactation, and where menstruation has not occurred.

In my own experience I attended a woman with three separate confinements within two years from the time I first met her. I attended her in confinement eleven months later in another, and eleven months subsequent to that in a third, the patient not having menstruated between these pregnancies. Leopold after investigation of the subject of ovulation asserted that the Graafian follicle which ruptured during the menstrual flow had a large corpus luteum, that one which occurred in the interval had an exceedingly small one; the former consequently was the true corpus luteum. Strassmann combats the theory of Leopold and asserts that the ovulation in his cases occurred in patients who were suffering from diseased conditions, and that consequently it is not a true indication of the occurrence of this act in a healthy ovary; that in many cases the rupture had resulted from the pressure upon an ovary during the performance of the operation. Aveling considered menstruation as an act which took place periodically with a view to the preparation of the uterus for the reception of the ovum, and established a reflex influence upon the ovary which led to ovulation—in other words, that menstruation caused ovulation rather than ovulation menstruation. This theory, however, is one which is not capable of proof. It is possible that menstruation may take place without the escape of the ovule. This occurs, however, in diseased conditions of the ovary, where its capsule is so firm and strong that it will not rupture. Löwenthal asserted that the Graafian follicle ruptured, the ovum passed out of the ovary down the oviduct to the uterus; when it reached the first fold of the uterine mucous membrane the unfertilized ovum became embedded and evoked as a consequence of its presence a swelling of the entire mucous membrane, forming a menstrual decidua. If it was fertilized, this resulted in a gestatory decidua. When not fertilized it caused both active congestion and disintegration of the menstrual decidua. This congestion reacts on the ovary, when it contributes to the formation of another follicle.

Quite a number of other ingenious theories exist, as the menstrual nerve of Johnson, the menstrual center of Christopher Martin, the nervous circle influencing the occurrence of menstruation, and so on. The latest theory upon the subject is that which has been recently introduced by Fraenkel, and consists in the view that the Graafian follicle rupturing, fills up with blood, which becomes organized in the form of gland structure, which produces a secretion causing nervous irritation and its influence upon the blood which develops the menstrual molimina, causing the changes in the uterus and the menstrual cycle. In those cases in which the ovum has become impregnated the retention of the Graafian follicle affects the nutrition of the ovum and prevents its being discharged by the uterus. He emphasizes the well known fact that the removal of the ovary brings about a cessation of menstruation, and asserts that it is not the removal of the ovary itself, but the removal of the lutein cells of the corpus luteum, that causes the atrophy of the uterus and its tendency to throw off its contents if this structure has lost its influence early in the gestation. His demonstrations would indicate that the destruction of the corpus luteum brings about the arrest of the pregnancy, and the cessation of the menstruation with its retention, even though the major portion of the ovary be removed, will maintain the nutrition of the uterus and the continuance of the pregnancy. Without question, then, the ovary or portions of its structure are essential to the occurrence of menstruation. Menstruation, however, does not take place from the ovary, but from the mucous membrane of the tube and of the uterus. The association of the Fallopian tube in menstruation has been seriously questioned, and of course is somewhat difficult to determine. The number of cases which have been reported, however, and one which will be reported this evening, would justify the suspicion that the Fallopian tube took part in the discharge of blood associated with menstruation.

The anatomical structure of the tube would presuppose this, having a thin mucous membrane, exceedingly vascular, covered with columnar epithelium, and its continuation with the uterine mucosa. The cases mentioned are those in which menstrual discharge takes place each

month from the orifice of the tube which had been connected with the abdominal wound. This occurred more frequently in a time when the pedicle of an ovarian cyst was clamped in the wound. Cases of this kind have been mentioned by both Atlee and Spencer Wells. Recent investigations of Bond, where operations have been performed during the menstrual period, have disclosed bloody fluid in the tubes. The association of the tube in the menstruation has been denied by some, and the absence of blood in pyosalpinx and particularly in hydrosalpinx, when the fluid is perfectly clear, is cited as evidence that the tube took no part in the menstruation or this fluid would be discolored. Bond directs attention, however, to the excessive alkalinity of the fluid in hydrosalpinx, which causes decomposition of the blood-corpuscles and sets free hemoglobin. A more probable explanation in my mind, however, is that in cases of hydrosalpinx and pyosalpinx, the inflammatory changes which have occurred in the tube have rendered its vessels much less susceptible to rupture under the blood pressure, and consequently the bleeding does not follow. In those cases in which the tubal vessels have not undergone such a change and the abdominal end of the tube has become closed, we find accumulation of blood taking place in the tube which may form a tumor of considerable size, causing the condition known as hematosalpinx, and I have no doubt that in the hematosalpinx in which the fluid is bloody, without the presence of any membrane or sac, it is very frequently produced in this manner.

TUBAL MENSTRUATION—A CASE HISTORY.[1]

By P. Brooke Bland, M.D.,
Philadelphia.

The history of the patient which I am privileged to report is one of exceeding interest to me, not alone from the fact of its rarity, and from the study of the part played by the tubal mucous membrane in the process of menstruation, but also because of the lesson it teaches in the consideration of the diagnosis of post-operative sinus following abdominal section. The history of the patient is as follows: Her family history has no practical bearing on the case, though one sister died of uncontrollable epistaxis. There is no further history of bleeder's disease in the family. Personal history: The patient had the diseases common to the period of childhood, otherwise she has always enjoyed fairly good health. Menstruation was established at the age of fourteen; the advent of this process occurred without any unusual disturbance, and it has always remained practically normal. She was married at the age of twenty-one, but never has been pregnant. The last menstrual flow was observed about one week prior to her admission to the hospital. Her trouble on admission was first manifested during the month of March, 1902. At this time a tumefaction appeared in the lower abdomen, somewhat to the left of the median line. This mass progressively increased in size, resembling somewhat the gravid uterus, and caused later intense pain. At this time also the patient displayed symptoms of a febrile character, and she was forced to seek relief in one of our city hospitals. On admission to this institution her temperature reached as high as 103° F. On April 23, 1902, the patient was operated upon, and a large intrapelvic (probably broad ligament) abscess was incised and an enormous quantity of pus was evacuated. Gauze drainage was instituted, and the patient apparently made a good recovery. Shortly after leaving the hospital, however, a small abdominal sinus developed almost simultaneously with the advent of the succeeding menstrual period, and this has continued periodically to discharge until the present time.

On coming under our observation, ten months subsequent to her previous operation, a small discharging sinus was observed in the lower half of the old abdominal cicatrix. At times the material discharged from this opening was comparatively *nil*, but during or indeed even a day preceding the establishment of the menstrual flow the discharge increased in quantity, became bloody, and assumed the characteristics of menstrual fluid. The patient was prepared for operation, and under anesthesia careful exploration of the discharging canal was made, thinking that possibly an infected ligature was present about the stump of a previously

[1] Read at the meeting of the Obstetrical Society of Philadelphia, Oct. 1, 1903.

excised appendage; and, moreover, not giving sufficient consideration to the phenomena that characterized each menstrual epoch, a Gross ear hook was introduced into the opening. This instrument immediately passed its full length without the interference which is usually encountered in exploring an ordinary sinus. The abdominal wall was then incised, and on entering the belly cavity the fimbriated end of the right Fallopian tube was found adherent to the old abdominal scar. The freedom with which the probe traversed the discharging canal was thus explained —that is, it had traveled through the tubal lumen and entered the interior of the uterine body. The tube and ovary on this side were removed and subjected to microscopical study, but no lesion more than a low inflammatory process was recognized.

From the phenomena presented by this patient we are led to the questions: What relation does the Fallopian tube bear to menstruation? and what changes are manifest in the tubal mucous membrane? The subject of tubal menstruation has long been a debatable one, but the signs evidenced by this patient would seem to establish the fact that the tubal mucosa is an active factor in this process, and to confirm the observations of some of our most eminent investigators, that during menstruation the mucous membrane of the tubes undergoes certain histological changes similar to those of the endometrium, though to a somewhat less degree.

Regarding the histological change that takes place in the uterine and especially in the tubal mucous membrane, there exists still much diversity of opinion. Many observers claim that gross changes occur, even extensive exfoliation of the epithelium, with destruction and expulsion of the mucous membrane. Numerous other investigators view the situation with milder judgment, and claim that only the most superficial portion of the endometrium is shed, and still others assert that not even the ciliated epithelium is desquamated. From my own examination of the menstrual fluid I could not regard extensive exfoliation of the endometrium otherwise than pathological. The interesting investigations of J. Bland Sutton on the endometrium and tubal mucosa of young women dying during menstruation, and women operated upon for uterine myoma and ovarian neoplasms, would seem to indicate the character of the physiological changes that take place in these structures during the menstrual period. He found that the chief destructive change was limited to the desquamation of the uterine epithelium. The more recent investigations, however, of J. C. Bond, on the normal menstruating endometrium and tubal mucous membrane, demonstrate that true and definite alterations occur in the tubal mucosa during the menstrual period. Furthermore, Bond found that the character of the secretion elaborated by the tube during this period was precisely similar to that of the fluid escaping from the external os uteri; and, moreover, stained sections of these structures show definite histological changes.

The observations of Bond seem to show that menstruation is actually first established in the tube, progresses downward into the uterine cavity, and ceases in like manner. In this connection the question of backward regurgitation arises, but from the physiological facts that the tubal secretion is established simultaneously with the uterine flow, indeed, if not preceding the appearance of the flow externally, and that definite histological alterations have been noted in the superficial portion of the tubal mucous membrane, would to my mind dispose of the question of backward regurgitation. Further, it has been recently learned that the anatomical arrangement of the uterine end of the tube is such that this process could not be accomplished. Chapin Winard has actually observed menstrual flow escaping from the orifices of the Fallopian tubes in a patient with an inverted uterus.

At this point I desire to refer briefly to the function of menstruation. It has long been taught, and this teaching, I believe, is almost universally favorably accepted, that menstruation is truly a genetic process, and its function is to prepare the uterine mucosa in a manner favorable to the implantation and development of the ovum. If this teaching be true, would it not, therefore, be essential that the same physiological changes should take place in the tubal mucous membrane in order to render a soil favorable to the development of the tubal ovum or an ectopic pregnancy? This, in my judgment, is a question that will have to be seriously considered in the future study of the eti-

ology of tubal pregnancy, and perhaps will open a new portal in this line of research.

The practical deductions to be drawn from this case report are: (1) That the tubal mucous membrane seems to be an active participant in the physiological process of menstruation; (2) that factors other than the presence of neglected foreign bodies or of an infected ligature must be considered in the causation of postoperative abdominal fistulæ; (3) that in considering the etiology of tubal gestation, the part played by the tubal mucous membrane must be considered.

From a perusal of the literature I find but four similar cases recorded—one by Hoffmeier, one by Landsberg, one by Thompson, and one by Terrillon. The last three mentioned are of such extreme interest that I feel justified in setting forth a brief outline of each. Thompson's case resulted from the rupture of a pus tube through the abdominal wall. A fistula followed, which became active during each monthly period, and he utilized this for study. He also records a case in which similar phenomena existed, only the communication was established through the posterior vaginal fornix. Landsberg's case is very like the one I report, but in addition presents a very interesting feature. His patient became pregnant, and during this period and the period of parturition the abnormal canal remained absolutely quiescent, but with the reëstablishment of the menses it again resumed its former activity. Terrillon's patient was troubled with violent unilateral pain with the primary establishment, and during each succeeding menstrual period. After a time a palpable fluctuating tumor was discovered in the lower abdomen. This increased in size with each menstruation, and at this time the suffering was always greatly intensified. Laparotomy was performed, and a large, universally adherent hematosalpinx was revealed. The contents of this sac were evacuated, and the walls secured to the abdominal incision. This procedure, of course, resulted in the formation of a persistent abdominal sinus, which continued to discharge coincident with each menstrual period.

In conclusion, I desire to express my thanks to Dr. E. E. Montgomery for the privilege of reporting this case.

TYPHOID FEVER IN INFANCY AND CHILDHOOD.

Although our experience has been that children with typhoid fever require little medication as a rule, and that drugs are not always needed, we read in the *Medical News* of September 26, 1903, an article by GRIFFITH in which he has the following advice to offer: As he well says, in the present method of making hydrotherapy practically the only therapeutics of typhoid fever, except purely symptomatic treatment, the question is a vital one as to how far the method applies to the disease as occurring in children. Although valuable, hydrotherapy must be used with much caution, and the method of Brand, carried out in its exactness, is seldom applicable. In the author's experience the true cool or cold bath occupies but little place at this time of life. Children as a rule do not tolerate it well. Even the tepid plunge of 85° to 90° F., or the graduated bath, is often not well borne, even by older children. It has been repeatedly abandoned on account of the weakness of the pulse which it produced. The writer's custom is to employ sponging first, since this is often quite sufficient. If it is not, then the graduated bath of 90° cooled down to 80° F. is employed. In some instances excellent results follow the use of the bath at 95° to 100° F., while in others cold to the belly is serviceable in reducing temperature.

It is noteworthy that very often sponging seems to do harm. In many such cases tubbing is to be preferred to sponging on account not only of its greater power, but especially of its shorter duration. To sponge a child for fifteen minutes who is crying and struggling violently meanwhile is of very questionable good. A brief immersion in the bath is often far less fatiguing to the patient.

We must remember that children as a rule not only develop high temperature readily, but that they tolerate this unusually well. We can therefore, in many cases, afford to let the temperature alone. Careful judgment must be employed, and hydrotherapy can never be used in children as a necessary routine. Although so valuable in many cases, it is, without the exercise of judgment, often capable of doing far more harm than good.

The Therapeutic Gazette

EDITED BY
H. A. HARE, M.D.,
GENERAL THERAPEUTICS,
AND
EDWARD MARTIN, M.D.,
SURGICAL AND GENITO-URINARY THERAPEUTICS.

SUBSCRIPTION RATES FOR 1903:
(PAYABLE IN ADVANCE.)

THERAPEUTIC GAZETTE (*postage included*).....$2 00
THERAPEUTIC GAZETTE with MEDICAL AGE..... 2 50
THERAPEUTIC GAZETTE with BULLETIN OF PHARMACY 2 50
THERAPEUTIC GAZETTE with MEDICINE..... 3 25
THERAPEUTIC GAZETTE with AGE and MEDICINE..... 4 00

Foreign subscriptions may be ordered either through our European branch, 111 Queen Victoria Street, London, E. C.; or through our agent in England, Mr. H. K. Lewis, Medical Publisher and Bookseller, 136 Gower Street, London, W. C. Price, 10s. Remittances may be made either by Postal Order or Stamp.

Price to Foreign Subscribers direct (postage included), $2.50 (10 shillings). English postage-stamps received on remittances.

Editorial communications should be addressed Northwest Corner Eighteenth and Spruce Streets, Philadelphia. Articles intended for the Original Department of the GAZETTE will be accepted only with the understanding that they are contributed to it exclusively.

Authors will receive reprints in pamphlet form, without charge, providing the request for them be written on the articles sent.

Business communications should be addressed to

WILLIAM M. WARREN, Publisher,
Box 484. DETROIT, MICH.

Leading Articles.

THE TREATMENT OF MENSTRUAL DISORDERS.

In this issue of the THERAPEUTIC GAZETTE we publish two papers—one by Dr. Montgomery, the Professor of Gynecology in the Jefferson Medical College, and another by his assistant, Dr. Bland—which deal, to some extent, with the physiology and pathology of the menstrual period, and tend to give us a better insight into the pathological conditions which must be treated when patients suffering from disorders of menstruation present themselves for relief. There can be no doubt that painful menstruation depends upon very diverse pathological conditions. In some instances it is undoubtedly due to stenosis of the uterine cervix, so that it is difficult for a free flow to escape from the fundus, particularly if the escape of blood is free enough to cause clotting, or if the mucous membrane lining the uterus is shed in large flakes which have to escape through a pin-hole orifice. In such instances the vigorous efforts of the uterus to expel its contents naturally cause much pain, and relief is obtained either by dilatation with proper instruments, or is remedied in a physiological manner by a pregnancy and parturition. In still another class of cases the condition is probably dependent upon a lack of development of the uterine tissues, so that they do not possess normal elasticity in their blood-vessels or elsewhere, and when they are congested at the menstrual epoch, pain is produced by their inability to yield to the physiological process, with the result that nerve fibers are compressed, and pain results. The papers of Dr. Montgomery and Dr. Bland, which show that the lining of the Fallopian tubes is actively involved in the menstrual process, indicate that painful menstruation may be due to changes in the Fallopian tubes, cicatricial or otherwise; and it is a well known fact to physicians of experience that women not infrequently express the belief that one or the other ovary is particularly active at each individual menstrual period because of the limitation of the pain, to some degree at least, to one side of the pelvis. In these instances, it is not improbable that the difficulty lies in the Fallopian tube on that side rather than in the ovary itself. Many of these women are sterile, probably because the Fallopian tube is not patulous, and therefore does not permit of impregnation on the one hand, or a free drainage on the other.

Of the remedial measures which should be instituted under these various circumstances, there are very few from the point of view of drugs which are of much value. The use of the opiates in such cases is rarely justifiable, as they are but temporary remedies, and there is danger of engendering the habit. Other narcotics are open to the same objection. When the paroxysms of pain are exceedingly severe, there can be no doubt that the employment of a general anesthetic is permissible. In still other instances, the employment of a hot vaginal douche, continued for a period of from fifteen to twenty minutes, or half an hour, may relieve the congestion, and so indirectly relieve pain. In still other instances, as we have intimated, operative interference is absolutely essential. But it is to be remembered that operative interference will not benefit cases dependent upon lack of pelvic development, and will often add to their discomfort by producing postoperative ten-

derness. A host of drugs are largely employed by many practitioners for menstrual disorders with the idea that they act as uterine sedatives. Careful inquiry amongst skilled gynecologists has usually elicited an expression of opinion to the effect that none of these drugs give results which are sufficiently constant to justify us in the belief that they exercise any real specific influence. Probably in many instances, when they are thought to do good, they produce a mental impression, or the paroxysm ceases at about the time that the drug is given, and so the remedy receives the credit. On the other hand, the experience of some of the profession seems to be so certain that viburnum, cimicifuga, dogwood, and hydrastis relieve many of these patients that we cannot afford to pass by these drugs without giving them adequate trial in those patients who, for various reasons, cannot, will not, or should not be subjected to local operative measures.

THE USE OF X-RAYS IN THE TREATMENT OF LEUKEMIA.

The profession of medicine is at present passing through a period when it is observing with great interest the claims which are being made by various clinicians as to the value of the *x*-rays in the treatment of certain diseases which have heretofore been considered incurable. There can be no doubt that some of those who have contributed articles to medical literature upon this subject have been inclined to be too enthusiastic as to the permanent results which can be obtained by the use of this agent. But on the other hand it certainly is true that superficial epithelioma can certainly be materially modified and often cured by the use of this comparatively new therapeutic agent, although more deeply situated growths which really possess quite different pathological characteristics and follow a different life history do not seem to be modified materially by this line of treatment. The fact that the Roentgen rays have produced good results in certain cases of hitherto incurable diseases has led to their employment in many other maladies which do not yield to operative interference or the use of medicinal substances. In the vast majority of instances these uses of the *x*-ray have been purely experimental and haphazard, since it was impossible for the physician, who knew little of the causation of the malady, and still less of the method of action of his remedy, to be rational in its employment. Such incurable cases as patients suffering from Hodgkin's disease, or pseudoleukemia, have been frequently treated in this manner. Some reporters have claimed excellent temporary results, but we do not recall at the present moment more than a few instances in which a case of true Hodgkin's disease was permanently affected for good by this plan of treatment. So, too, this therapeutic agent has been employed by many surgeons in the treatment of sarcoma—a nearly related condition to Hodgkin's disease—and the conclusions which have been reached, amongst which may be mentioned those attained by Dr. Coley, of New York, are that while it may be tried in inoperable cases, in no case should we depend upon this means of treatment if operation is possible; or, in other words, the benefit which it is possible to produce by the use of the *x*-rays in sarcomatous growths is so uncertain that this plan of treatment is to be regarded as a last resort, and only when older methods are impossible.

The *x*-rays have also been employed quite frequently in the treatment of true leukemia, and in the *New York Medical Record* of August 22, 1903, no less prominent a surgeon than Dr. Nicholas Senn, of Chicago, has reported a case of splenomedullary leukemia which he considers was cured by this means. He refers, in the course of his article, to two cases of Hodgkin's disease which he reported last April in the *New York Medical Journal* as cured by this method, and asserts they still remain in good health. The present patient was a Jewess of twenty-nine years, with a greatly enlarged liver and spleen, with marked pallor, with red corpuscles amounting to 3,500,000 and white cells 64,800. Many of these were myelocytes and eosinophiles, and poikilocytosis was very pronounced. It is regrettable that in a case such as this, which is of so much importance, a more complete record of the blood examinations is not given, since every one who is familiar with these cases knows that extraordinary variations occur in the reports of blood examinations, even when these examinations are made by highly competent observers. The actual method by which the patient was ex-

posed to the *x*-rays is not stated, save that the spleen, the lower end of the sternum, and the epiphyseal extremities of the long bones were exposed to the action of the *x*-rays daily from ten to twenty minutes. Three weeks after the treatment was instituted a marked decrease in the size of the spleen was noted, and it is stated (although the figures are not given) that the improvement in the blood kept pace side by side with the reduction in the volume of the spleen, so that in a comparatively short time no myelocytes, only a few eosinophiles, and very little poikilocytosis was present. Two months later an examination of the blood revealed no abnormality except that the patient remained somewhat anemic, and received for this anemia a simple iron preparation. Dr. Senn is inclined to attribute the improvement in this case solely to the *x*-rays, but he states that so far he has not seen a single case of either cancer or sarcoma benefited by this means of treatment. He evidently is a firm believer in the microbic origin of splenomedullary leukemia, and thinks that in this method we have an important ally for the cure of these cases. The fact that Dr. Senn has so much confidence in this method cannot fail to be encouraging to the profession in general, but the well known periods of improvement which occasionally take place in these cases force us to the conclusion that a report as to the curative influences of this plan of treatment in any given case can hardly be considered complete until a greater number of months have passed by than have elapsed since treatment was first instituted.

THE NEAR RELATIONSHIP OF PATHOLOGY IN THERAPEUTICS.

To the physician who graduated twenty years ago, and who has failed to keep in touch with the recent advances which have been made in pathology, it will probably seem that no two departments of medicine are more widely separated than the two which we have named at the head of this article. To the more recent graduate, or to the physician who has kept himself abreast of recent pathological advances, it will be evident that the two departments are daily becoming more and more closely associated. In many instances therapeutics has dealt successfully with diseases of which the pathologist has scanty knowledge, but when it has done so its success has been based upon good luck or empiricism, and not upon rational methods. Because of these facts, various plans of treatment which at times have had high repute have, after a certain time of trial, been cast aside as useless and have reflected discredit upon the medical profession, whereas in every instance where pathology has informed the therapeutist of the real nature of the disease, the rational plan of treatment which has been founded thereon has not only held its own during the time that it was novel, but has continued to enjoy the confidence of the profession.

The comparatively recent studies which have been made upon that most complex subject, "Immunity to Disease," have thrown a good deal of light upon some of the therapeutic procedures which are commonly resorted to, although as yet our knowledge of immunity and of the various complex functions of blood-serum is really exceedingly scanty. If, therefore, these studies have so far not greatly increased our therapeutic opportunities, they have served to impress those who have been interested in them from the practical standpoint with the fact that physiological processes and pathological changes are infinitely more complex than they have been supposed to be heretofore, and therefore that it behooves the physician more than ever to be most careful in his administration of drugs to those who are sick. In other words, it is of the greatest importance that the physician should not do anything which can in any way interfere with those principles which nature has designed to aid the patient in his combat with disease. It is rather remarkable that more damage is not done by the excessive drugging which is resorted to by certain practitioners. We doubt not that in the near future it will be found that many drugs which are now supposed to do good by increasing the force and rapidity of the circulation, in reality do their greatest good by affecting in some way yet unknown processes which are devised by nature to prevent or cure disease.

In the present state of our knowledge concerning immunizing and protecting bodies in the blood, it is evident that much of our therapeutic procedure is coarse and crude, and this is all the more reason why

we should be careful in our endeavor not only to do good by the administration of drugs, but still more to endeavor to avoid doing harm.

POISONS AND AUTOPSIES.

It not infrequently falls to the lot of the practitioner of medicine to be called in to a case in which the symptoms are so obscure or peculiar that he is inclined to suspect that they may be due to the entrance into the body, with criminal intent or by accident, of some poison. Under these circumstances it may become his duty if the symptoms are very characteristic to consult with some fellow practitioner, and if they are both in accord as to the probable cause of the disorder it may even be necessary to consult with officers of the law. It is hardly necessary to state that should death ensue in such a case, it is the duty of the physician to refuse to issue a death certificate, and to report the matter to the proper authorities in order that they may institute such an investigation as will determine positively the cause of death, and also determine whether the poison gained access to the body by accident or by evil intent. So, too, it will not infrequently fall to the lot of the practitioner, either when he occupies the office of coroner, or when he is called upon to do so by proper officials, to perform the autopsy which is necessary in the investigation of the case. And under these circumstances it is of vital importance that careful notes should be taken of the appearance of the various organs, and that the autopsy should be made with such care that should poison be present in one organ it cannot contaminate, through carelessness on the part of the physician, adjacent tissues. Not only are these precautions necessary, but the jars in which the various organs are to be put should be, prior to the autopsy, most thoroughly cleansed by the physician himself, should then be carefully sealed, and should not be opened until just before the organs are placed into them. Care should also be taken in the sealing of these jars as well as in the washing of them that no possible opportunity for the introduction of poisonous material occurs. Equally important with all these measures must the physician see that each organ is placed in a jar by itself as soon as it is taken from the body. If this is not done, so much doubt can be thrown upon the result which is obtained by the chemical analysis of the various organs that defendant is almost sure to be acquitted.

In a celebrated case which has recently been tried in the courts of Philadelphia, in which a woman was charged with poisoning several children with arsenic, one of the strongest points for the defense was the fact that the physician who made the autopsy placed the liver and kidneys in the same jar with the stomach. It is a well known fact in medical jurisprudence that the presence of poison in a stomach is not adequate evidence that death has resulted from that poison, since a poison must be absorbed before it can act upon vital organs. It is also a well known fact that arsenic will rapidly diffuse through an animal membrane, and therefore even if the orifices of the stomach are tied tightly, it is possible for the kidneys and liver lying in a jar with this organ to become contaminated by arsenic. Even although the sworn testimony of several chemists showed that arsenic was in the liver and kidneys, it could not be proved that it had gained access to these organs before death. Therefore it could not be proved that the arsenic had been absorbed; and finally, it could not be proved that the arsenic was the cause of death. This, and other conditions not so important, doubtless did much to cause the acquittal of the defendant. Although in this particular instance there was no evidence to prove that the woman had given the arsenic, the faulty autopsy, from the legal standpoint, was of vital importance in the case. With the legal questions concerned we have no interest, but in the medicolegal question which we have raised all physicians are interested.

SURGERY OF THE PARALYSES OF CHILDREN.

This branch of surgery—*i.e.*, the application of palliative measures to the prevention or cure of deformities incident to the paralytic affections of children—is so much neglected that the results of this neglect are conspicuous in all neurological and in many medical clinics. Jones (*Lancet*, Feb. 14, 1903) states that whenever we meet with a paralytic deformity,

with shortened or diminished joint movement, it can be safely assumed that either from lack of knowledge or from neglect a condition has arisen which could well have been avoided.

It is pointed out that certain deformities practically always follow special forms of paralysis. Thus, when the arm is completely paralyzed there will follow an extension of the wrist and elbow, and partial flexion of the fingers. A similar condition of the muscles about the ankle causes an extension and inversion or eversion. At the knee flexion would result, and at the hip flexion often with external rotation.

It is a commonly accepted belief that deformity is due to the action of antagonistic groups of muscles, but Jones points out that this is neither the sole cause nor even the most important etiological factor, as is proven by the deformities which occur when there is complete paralysis of all the muscular groups, and by the fact that in cases of partial paralysis the shortened or contracted muscles are sometimes found to be the paralyzed ones.

Among the factors in the production of deformity must be considered the effect of gravity, of body weight, the shape of the articular facets, and, to a lesser degree, unbalanced muscular action. Indeed, every deformity is produced in such a manner as to be readily explained by a searching examination. Hence such an examination is of cardinal importance in considering the prophylaxis.

Taking acute infantile palsy as the type of paralytic affections, and particularly that producing wrist-drop, Jones clearly shows that this affection, which is of slow growth, never recovers spontaneously, and demonstrates that the majority of such deformities could have been prevented by the simplest treatment. It is well known that in acute infantile paralysis the affection of the cells is a transient and recoverable one in so far as the majority of them are concerned. At the beginning of the attack perhaps the whole arm is paralyzed. After a time there is a partial recovery, probably the stronger flexors first, later the extensors; but the early recovery of the flexors, aided by gravity, produces a characteristic wrist-drop which the weakened and lengthened extensors are unable to overcome.

The general belief as to the incurability of the affection, once developed, is responsible for its persistence. Thus, a case which had persisted for twenty years is reported as cured by proper treatment, although the hand presented such a claw-like appearance that every attention was devoted to keeping it out of sight.

As to determining which of these late cases are amenable to treatment, Jones gives a certain, definite rule on which he states the surgeon can confidently rely. The patient is asked to move his fingers in the direction of the extensors, but of course says that this is impossible. The surgeon then grasps the patient's wrist and still further forcibly flexes it. The patient is then asked to extend his fingers from their new position. If he succeeds even in the least degree the prognosis is distinctly favorable. Should he fail, treatment is of no avail.

The treatment of this condition consists in slowly stretching and lengthening the flexors, and in placing the extensors in such a position that their structural shortening will ensue. The general principle underlying the treatment of wrist-drop underlies the treatment of all paralytic deformities—*i.e.*, the attempt must not be made to treat a weakened set of muscles without first rescuing them from being overstretched; for elongated muscles can only be restored to action by maintaining them in a slackened posture. This effect of course is attained by keeping the part in a proper position.

Especial weight is attached to the importance of preventing a pull on a paralyzed muscle. The importance of tendon transplantation can scarcely be overestimated, the effect always being beneficial. Sometimes it is absolutely curative.

In cases of flail joints requiring unceasing mechanical attention, Jones strongly advises anthrodesis—that is, transferring of the flail end into a member as rigid as the splint which it is desired to discard. The operation consists in opening the joint, and with a sharp gouge peeling the cartilage from the whole articulation. The joint is kept completely at rest for some weeks subsequently, and for a long period is fitted with simple apparatus which will enable the patient to walk without strain of the newly fixed joints. The knee is exposed by a semicircular incision across its front, the semilunar cartilages being removed, the whole joint

being converted into a raw surface. The crucial ligaments are generally left intact. If a complete bony ankylosis is desired, it is necessary to gouge the bone.

Even the cases of paralytic deformity characterized by flexion of the hips and knees, with extension of the ankles, marked lordosis, and inability to walk save by a swinging, crutch-supported gait, can be corrected fairly rapidly by properly directed procedures. The tendo Achillis is first divided and the ankles put in rectangular splints. A V-shaped wedge is then excised from each knee, the limbs being brought into extension and kept there for a few weeks. The hip deformity is corrected by a free incision of the fascia and all constricting bands until flexion is in the main overcome, when the patient is kept upon a double Thomas splint until the lordosis disappears.

In cases of spinal paralysis the mind is active, the patients being bright and cheerful. In cerebral paralysis the mental picture is a very different one. Jones groups these as infantile hemiplegia, cerebral diplegia, spastic paraplegia. He holds that the second group—cerebral diplegia—is the commonest, though a statistical collection shows that hemiplegia is the most frequent.

The diplegia and paraplegia groups are congenital affections, whilst infantile hemiplegia is usually acquired, appearing generally about the fourth year, and preceded by convulsions and acute febrile symptoms, thus strongly contrasting with the advent of adult hemiplegia. Deformities are extremely rapid. The arm and leg are powerless and the reflexes are exaggerated. The foot is rigid and adducted, the knee is bent, and the hip rotated inwardly. The femur is flexed, the arm clings to the body, the elbow is flexed to a right angle, and the wrist is dropped. The hand is pronated and deviating to the ulnar side, whilst the fingers grasp an adducted thumb. Rigidity develops nearly always, and is increased either by passive movements or efforts to move. The aphasia is motor, and calls for either right or left hemiplegia. Inequality of growth is the rule, little marked in the leg, usually well marked in the arm.

From the point of view of treatment, it should be remembered that the arm is more permanently and severely affected than the leg; that movements are performed spasmodically, slowly, and without precision; and that the power of dorsiflexion of the hand with simultaneous extension of the fingers is lost, and usually the hand has no adduction power.

The cerebral diplegic group is the most serious one to treat. Where the spasm is confined to the limbs alone it is given the name of spastic paraplegia, and presents a characteristic appearance.

Noting that the dominant deformities in both hand and elbow are pronation and carpal flexion, treatment should consist in fixing the elbow supine and hyperextending the wrist. The hyperextension of the wrist should be combined with that of the fingers, and a special arrangement should be adapted to keep the thumb at right angles to the palm. The spasm in these cases is often so pronounced that the extension of the wrist and fingers must be brought about very gradually. If the elbow is affected by contraction of the biceps and brachialis anticus, supination may be combined with extension. If this be not the case the flexed position of the elbow will suffice. If, instead of being firmly pronated, the elbow lies semiprone, it is not necessary to treat it, and all one's energies should be directed to the hands. If the hemiplegic hand spasm is mild this treatment may be discarded in about twelve months, provided that during the whole of this period the extension has been kept up without intermission. The test for relaxation must be the power of voluntary movement, however slow it may be. It will be noted that generally at this stage the patient in endeavoring to extend his wrist will first of all close his fingers, and will open them on completion of extension. The process is reversed when the wrist is flexed. In order to meet this difficulty the splint employed to extend both wrist and fingers is modified so as to extend the wrist alone, and to allow freedom to the fingers.

It is difficult to give a reason as to how improvement comes about, but it may be taken as an axiom that prolonged fixation of spastic muscles in a position opposed to their contraction lessens the severity of their spasm. This is true wherever spasm may be found, and its influence may be tested even in spasmodic torticollis, intractable as we know that affection to be. It would appear as if the group of muscles at last got tired of trying to pull. At this stage or earlier the surgeon may

decide whether in a given case success may be predicated, and if he is in doubt, operation should unhesitatingly be performed. Operation will consist of tenotomy or tendon transplantation. An incision is made over the tendon of the flexor carpi ulnaris just above the annular ligament, another is made over the flexor carpi radialis, and both tendons are divided low down and are taken—(1) the flexor ulnaris to be inserted into the extensor ulnaris, and (2) the radial flexor into the radial extensor.

Tenotomy alone has proved somewhat disappointing, though there will be an occasional successful case. The operation should be confined to the division of the flexor carpi radialis and ulnaris. It is better to elongate the other flexors of the hand by a long median incision such as one would employ in lengthening the tendo Achillis. Tendon transplantation, however, is a better operation, less complicated and more reliable. The surgeon's art does not end with the operation and hyperextension of the wrist, leaving the fingers free, but should be practiced for a further few weeks. In order to prevent adhesions after the operation the wrist should be freely but very gently moved in about a fortnight's time. Whether an operation has been performed or not, the final stages of treatment are identical. They should consist in getting both guardian and parent to urge the patient to practice movements, from simple to complex. The nature of the movements to be practiced must be left to the ingenuity of the surgeon. The principle which should govern him may, however, be here indicated: (1) The movements should be practiced slowly and without excitement; (2) they should be made interesting to the child; (3) those opposed to the direction of the deformity should predominate; and (4) those presenting the greatest difficulty should be chiefly practiced.

Regarding tenotomy of spastic muscle, empiricism has taught us that for some reason or other tenotomy lessens both in frequency and intensity the spasmodic element in paraplegia.

The practical deduction from these observations is that no opportunity should be lost of performing a tenotomy. Even in mild cases where a spastic tendon is to be felt, it should be divided without hesitation. If the surgeon has decided that a case of spastic paraplegia is suitable for treatment, a splint should be prepared so designed as to keep the limbs in pronounced abduction. The area over the hamstrings, the adductors at the groin, and the tendo Achillis should be suitably prepared for operation. The adductors should be first attacked. An incision an inch or two long should be made to the inside of the abductor longus. This muscle should be seized by a forceps and about three-quarters of an inch of it removed. The limb is then abducted and portions of the adductor brevis and gracilis are exsected in similar fashion. The horizontal portion of the adductor magnus, and if necessary the pectineus, is divided, and also any tissue, muscular or fibrous, obstructive to an absolutely free abduction of the femur. Division is followed with but little hemorrhage, and the wounds are closed without drainage. Having exsected the pieces of the adductors, each tendo Achillis is divided, or better still, elongated. Rectangular splints are then applied to the foot. The limbs are well abducted, and the surgeon notes whether there is any obstacle to easy extension of the knees. If there should be (it is not often the case) an open incision must be made on each side of the popliteal space, and the tense hamstrings are then divided. If these incisions are long enough the fascial contraction can be attacked on either side, for it is here that contraction is found. The use of a transverse incision is not advisable, since it often seriously hampers the surgeon's efforts to extend the knee fully by reason of the strain on the sutures. Simple division, however, with fasciotomy usually suffices to allow of easy extension, and excision of tendons could do no more.

The patient is now presumably stretched comfortably upon an abduction frame, where he should be kept for three weeks. The wounds heal very rapidly. The author asserts that suppuration has occurred in the adductor cavity on three occasions only, despite the position of the wounds and the number of operations performed. This is out of a series of twenty-seven cases in one year, which may be taken as a fair index. At the end of three months the splint is taken off during the day. Movements are sedulously practiced. For

some weeks stiffness exists, and often the movements are at first painful, but after a time (always shortened by vigorous exercise) the pain disappears, and the effort must be made to walk. The splints are of a simple kind designed to keep the knee from bending. The boots should be made of felt with substantial soles. Both boots and splints should be kept upon the patient day and night; and for the first two weeks, frequently during the day, abduction, adduction, flexion, and extension of the hips should be practiced. This should be done with and without resistance. At night-time the feet should be attached to the sides of the bed in order to maintain abduction. After the first few days of this later stage of treatment the splints should be removed twice a day and the muscles well massaged, and both active and passive movements of ankles, toes, knees, and hips encouraged. Any movement executed in a jerky style should be practiced until perfect.

The patient should now try to walk. During early training the nurse must see that while walking the limbs are not approximated, and from the first swinging, aided by crutches, must be prevented. Crutches should not be allowed until the patient has been taught to stand unsupported. This treatment affords an inexhaustible field for ingenuity, and upon the intelligence and industry of the nurse very much depends.

The mental condition of the children obviously improves when their physical defects are remedied and they are enabled to mix with their little friends. Complete recovery in spastic paraplegia is, of course, impossible.

It is evident that the treatment of spastic paralysis should resolve itself into a system. That system involves operative, mechanical, and educational stages. The treatment cannot be separated into parts. If the surgeon is not satisfied that the case is to be under his control for twelve months, he will consult his reputation best by leaving it alone. Operations not followed up by careful and prolonged after-cure give rise to disappointment and discredit. Merely dividing tendons and trusting to massage and electricity is futile and dispiriting.

THE SURGICAL TREATMENT OF THE CHRONIC INFLAMMATION OF THE LARGE INTESTINE.

The chronic inflammatory affections of the cæcal and rectal extremities of the large intestine are so regularly subjected to surgical treatment that recourse is had to this as a matter of course when medical means fail. It is, however, not generally recognized that chronic colitis may be so persistent in the absence of malignant and tuberculous lesions as to call for operative measures as urgently as would a tuberculous infiltration of the cæcum.

The surgical intervention may have for its end either the switching out of the infected portion of the bowel, giving it a complete rest, or the provision of an opening through which the bowel can be thoroughly washed by means of healing and cleansing solutions.

In case of obstinate and prolonged inflammation, an artificial anus at the cæcum may enable the surgeon not only to rest the inflamed area, but also to subject it to proper medicinal treatment.

Launay (*Archives Générale de Médecine*, April 28, 1903) suggests in place of an artificial anus the formation of an anastomosis between the lower end of the ileum and the sigmoid flexure. He has performed ten such operations, thus partially, if not completely, switching out the affected part of the gut, and notes that the results were very satisfactory, all the symptoms practically disappearing. In twenty-nine cases treated by the formation of an artificial anus, the symptoms promptly disappeared, but after closure of the artificial opening there was recurrence in a number of cases.

Where the surgeon wishes merely to wash out the bowel, the ingenious suggestion of Weir may be employed, the appendix being brought to the surface of the skin and secured there, after which it is opened, and by means of a catheter passed through its lumen the large intestine is thoroughly flushed.

These various operations suggest in a new form the thought that the trend of modern therapeutics is steadily toward surgery.

Reports on Therapeutic Progress

THE ACTION OF ARSENIC ON THE BONE-MARROW OF MAN AND ANIMALS.

STOCKMAN and CHARTERIS in the *Journal of Pathology and Bacteriology* for May, 1903, report a research on this subject and reach the following conclusions:

1. In small repeated doses arsenic acts on the bone-marrow, causing increase in the number of leucoblastic cells, little or no change in the number of erythroblastic cells, marked hyperemia, and atrophy of fat cells.

2. During this stage there is no increase in the red corpuscles or hemoglobin of the blood.

3. In repeated doses, large enough to cause cachexia and emaciation, the bone-marrow undergoes hyaline degeneration.

4. This is accompanied by decrease of the red corpuscles and hemoglobin of the blood.

5. All these changes occur with other drugs and poisons, and are not peculiar to arsenic.

6. Arsenic has no direct effect in increasing the production of red blood-corpuscles by the bone-marrow.

7. The "hematinic" action of arsenic in pernicious anemia, malaria, lymphadenoma, leukemia, and some other diseases, probably results from a specific action on the parasites which cause these diseases, and not from any direct action on blood formation.

TREATMENT OF ECLAMPSIA.

In the issue of *American Medicine* of July 18, 1903, KRUSEN has the following advice to give as to the care of the patient with eclampsia: It is a well known clinical fact that in the majority of cases of eclampsia the convulsions cease soon after the uterus is emptied. There seems little force in the argument that the delivery of the woman is a violent source of irritation to the already highly wrought nervous system, as such an effect can be prevented by the continuous administration of an anesthetic. The presence of the fetus *in utero* is the direct cause of those conditions which produce eclampsia. Its removal, therefore, is most certainly a removal of the cause, a removal of the most apparent and positive etiologic factor. Upon this subject the teaching of Duhrssen seems to be sensible and sound; and if the eclampsia comes on during the last month of pregnancy, when the child is viable, its speedy extraction becomes desirable. The fetal mortality is high even under favorable circumstances, and the fetal life is endangered by the repeated convulsions; so that fetal considerations should not influence us materially in securing prompt delivery. To secure this prompt delivery, Cæsarian section has been proposed by Halbertsma. Few operators, however, have the temerity to subject an eclamptic or nephritic patient to the dangers of celiotomy unless as a last resort. The author believes it would be better to return to the old method of Gooch, of taking care of the convulsions and letting the uterus take care of itself, rather than further jeopardize the patient's life by such a radical procedure. The operation is justifiable only when there is pelvic deformity or some condition which prevents vaginal delivery.

Hillmann has collected 40 cases of eclampsia in which Cæsarian section was employed. Of the 40 mothers, 21 perished and 19 recovered, surely not an encouraging report. The operation of vaginal Cæsarian section performed by pulling down the cervix, incising the anterior vaginal wall, and pushing aside the tissue until the anterior wall is free to the internal os, then incising the anterior uterine wall and extracting the fetus, is open to many of the objections which are applicable to celihysterectomy. Among these objections, as stated by Edgar, are the uterine atony and hemorrhage, the irritation of the uterine and abdominal scars, and the curative peritonitis about the uterine sutures, all of which should be avoided as exciting causes of subsequent eclamptic seizures. But the chief mooted point in the obstetric treatment of eclampsia is whether labor should be waited for and terminated naturally, or whether induced labor should be reserved for exceptional cases in which medical treatment has failed.

From the report of the International Congress at Geneva, September, 1896, it would seem that the weight of medical opinion is in favor of emptying the uterus in as short a time as possible in cases of eclampsia, whether the attack occurs before or during labor. If the patient is

in the second stage of labor, all authorities are agreed that the immediate emptying of the uterus is indicated, and should be performed promptly; but in cases in which labor has not begun, or in the first stage, widely varying opinions have been expressed. An expectant or palliative treatment, the author believes, means almost certain loss of the child and a loss of 30 per cent of the mothers. Therefore mechanical dilatation of the cervix, or deep cervical incisions properly performed under rigid antisepsis, are the best plans of procedure. When the cervical canal is thoroughly dilated, the child may be removed by forceps or version.

While the obstetrician should not cease to combat the convulsions, the sooner he produces or hastens labor the better are the chances for both mother and child. It is unnecessary to detail the method of delivery. It is enough to say that it should be accomplished as rapidly as possible, for we hold with Zweifel that the prompt emptying of the uterus contributes greatly to the patient's recovery. Although very well aware that the majority of cases of eclampsia occur in primiparæ, and that cervical dilatation, either manual or by the use of some dilating bags, is a tiresome and difficult procedure, yet nevertheless the sooner that dilatation is begun and completed the better are the chances for recovery. When fatal results do ensue in eclampsia, they are usually due to edema of the brain, the lungs, or the larynx, to apoplexy, asphyxia, or heart failure, or the patient remains comatose, dying from an overwhelming accumulation of the toxins.

TREATMENT OF MUCOMEMBRANOUS COLITIS.

In the *British Medical Journal* of June 27, 1903, BOTTEMUIT in discussing the therapy of this troublesome affection remarks that before instituting a plan of treatment we must take into account the previous treatment. Almost all the patients the author has attended have used purgatives much too freely. In the first stage of the illness purgatives appear generally to be of some service; but in the course of time their good effects diminish and their prolonged use irritates the mucous membrane, and thus augments the constipation and the secretion of mucoid matter. This is especially true of drastic purgatives and saline purgative waters. All the patients he has attended have previously been subjected to milk diet, but without good results.

The diet ought to be the same as is given in gastrointestinal dyspepsia or in dilatation of the stomach. In the first place, it is most important that all food which leaves residues after eating, such as tendons, fibrous tissues, grains, and those which the juice of the stomach and intestines are incapable of dissolving and digesting, should be avoided. Their passage keeps up the inflammation of the intestinal mucous membrane, and their presence sometimes provokes peristaltic contractions, which are often painful, and which produce an action of the bowels. From this action arises the reputation of salads, green vegetables, and fruits as having a laxative action, but often they do not act in this manner, and on the contrary the constipation increases. It is easy to demonstrate in what state the residue of such food after having passed through the intestine is evacuated. If the feces are placed on a fine sieve and water is poured on them sufficient in quantity to break them up, and one continues to pour it till the water which is passed on the fecal matter has ceased to be colored and has lost its odor, we then find on the sieve the residue of the food—that is to say, fibers of salads, of French beans, and tendinous fibers of meat and the skin of farinaceous vegetables.

It is especially necessary to advise such patients to eat slowly, to masticate their food carefully in order that it may be thoroughly broken up and well mixed with the saliva. Food should be taken in small quantities but of a very nutritious kind, such as eggs prepared in any way except hard boiled. Light meats, whether roasted, grilled, or baked with their gravy, may be taken, but without any sauce. If the patient has not good teeth he ought to have the meat hashed or even passed through a masticator. All high meats or those badly cooked, and especially all kinds of food which are in a state of decomposition (such as certain cheeses), which are in consequence full of toxins and microbes, must never be eaten.

We may allow white fish, boiled or fried, but if fried the skin should not be

eaten. Farinaceous vegetables (potatoes, peas, French beans, lentils, chestnuts), if passed through a sieve, may also be swallowed. The author recommends his patients to eat the vegetables with their meat, and to be careful not to swallow their food too quickly. If kept some time in the mouth the effect of the saliva on them will be to help their digestion. Macaroni and rice are also permitted. Toast in small quantities may also be given, but breakfast biscuits are preferable. Also milk soups, thickened with pastes, such fruits as have no pips, peaches, apricots if quite ripe, especially when cooked, may be allowed; but on the other hand, fatty foods, sour fruits, underdone food, sauces, ragouts, game, shellfish, pork (excepting the lean part of ham), must be forbidden; also wine, beer, and all alcoholic drinks are not allowed.

A small amount of water or tea taken at meals is useful, and they are in the habit of prescribing at Plombières before each of the two principal meals a glass of the water of the Source des Dames (125° F.). For patients whose dejections are wanting in color, and who have a sluggish liver, the author adds to the glass of water 1 gramme (15 grains) of Carlsbad Sprudel salts. The two glasses of water contain, therefore, 2 grammes (30 grains) of Sprudel salts every day. In eight or ten days the feces have a natural color, and the fetid odor has disappeared. It is necessary in these cases to insure a regular action of the bowels either by laxatives or enemata. One of the best laxatives is castor oil, but when it is not tolerated we must have recourse to magnesia, sulphur, cream of tartar, either separate or mixed in equal quantities. Sometimes when purgatives which are generally successful fail some other medicine will succeed; sometimes one must have recourse to cholagogues, and often to calomel, especially in cases of sluggish liver. Often glycerin suppositories are very useful, or when there is a spasmodic condition of the rectum, suppositories of belladonna. Sometimes when the constipation is very marked we have to use all these remedies combined.

When there is diarrhea, bismuth salicylate should be used, and the intestines should be washed out and mild antiseptics given; when there are paroxysmal crises hot compresses on the abdomen, poultices, and frictions with belladonna should be prescribed.

Baths are also a source of great relief. The baths of Plombières water of forty minutes' to an hour's duration at 35° to 37° C. have a great and sedative effect both on the nervous and circulatory system. They are of great use in cases where there is spasm of the colon or crises of enteralgia. Their first effect is to produce sleep; often they cause a disappearance of the mucoid matter, regulate the action of the bowels, and diminish the attacks of diarrhea.

Together with the laxatives washing out of the intestine ought to be resorted to. These washings not only help the discharge of the fecal matter and the mucomembranous secretions, but they also soothe the pain due to intestinal irritation and spasm. They are not given only as a mechanical means of evacuating the intestine, but as a therapeutical agent, which, thanks to the specific power of the Plombières water, acts on the intestinal mucous membrane. These douches must, however, be given with great care. The pressure must not be too strong, or it will provoke painful crises or exaggerate the spasms. The vessel which holds the water should be placed at 40 or 50 centimeters above the patient's bed. The temperature of the water should be from 38° to 45° C. The amount introduced ought not to be very large; the injection of 1½ to 2 liters into the intestine at one time will often provoke pain and spasm. The author generally prescribes only one-half liter for each injection. It should be retained for some minutes, but no great effort ought to be made to retain it. The patient should lie first on the left side, then on the back, then on the right side, so as to enable the water to circulate through the whole of the colon and cæcum. When this water has been rejected, and after resting for a few minutes, the same amount of water should be reinjected, always advising patients to take this washing out after they have had an action of the bowels, because it is not to be looked upon as a mechanical means of evacuating the intestine, but as an intestinal bath.

In each bath-room at Plombières there is a sofa on which the patient lies, and at the foot of the sofa is the receptacle for the water fixed at a height indicated by the

doctor. There is also a thermometer with a dial which gives the temperature of the water in the receptacle. Attached to this vessel containing the water is a tube which descends as the water in the vessel falls; there is also attached to the tube a little instrument which descends with the water. This has the advantage of enabling the patient to know exactly how much water has been injected into the bowel. The number of these bath-rooms at Plombières in 1897 was 15, now there are 100. During the last six years the number of baths has increased from 3000 to 28,000.

In the treatment of mucomembranous colitis we must not forget to consider the special indications to which the different complications give rise. The more frequent are gastric affections, hyperchlorhydria, floating kidney, uterine or uterovarian affections, and neurasthenia.

POTASSIUM PERMANGANATE IN THE TREATMENT OF LUPUS.

HALL-EDWARDS speaks so highly of the use of this salt in the cure of lupus that we make an excerpt of his paper, which is printed in the *British Medical Journal* of June 27, 1903.

During his observations of a large number of cases treated by means of the *x*-ray the author has tried the action of a number of drugs in conjunction with the rays. Some have been used for the purpose of bringing about a more speedy reaction, others with the object of limiting the dermatitis. During these experiments he was early struck by the good effects produced by potassium permanganate, not only as an adjunct to *x*-ray treatment, but in clearing up patches left after the administration of the rays.

After having used the drug for a considerable length of time, and in a variety of ways, he discovered that the treatment of lupus by this means was not new; and his attention was drawn to an article in the *British Medical Journal* of April 5, 1902. It appears that the use of this drug for the treatment of lupus vulgaris and erythematosus was first suggested by Butte. In the article mentioned Dupuy gives the results of his observations on a number of cases treated by Butte's methods. Butte used a compress of a two-percent solution of potassium permanganate, which was applied for twelve to fifteen minutes daily, for about a fortnight; or, in non-ulcerative patches, the powdered drug was spread over the part with a spatula, a piece of dry absorbent wool applied, and the whole left on the part for a quarter of an hour. This latter method is somewhat severe, and produces a considerable amount of inflammation. Dupuy maintains that the action of permanganate is more rapid than scraping, and the resulting cicatrices are softer, flatter, and less likely to contract than those following other methods. One disadvantage (he says) is that the tissues are considerably stained.

After trying many methods the author has now for some time used one with such good results that he makes no apology for bringing it before his readers. He uses a saturated solution of the salt, which is made by dissolving a drachm in an ounce of distilled water. In non-ulcerative cases he first washes the patch with carbolic or ichthyol soap, and afterwards wipes it over with a pledget of cotton-wool moistened with methylated spirit. When dry he applies the solution of potassium permanganate with a brush. In cases covered with crusts the surface is cleaned as well as possible without removing it, and the crusts themselves are saturated with the solution. The applications are repeated every day or every other day until relief is obtained.

In many cases of lupus treated by the *x*-rays, the centers of the patches rapidly get well, whilst the edges continue to spread slowly. In these he has met with his best results. In most of these cases he has continued the *x*-ray treatment in addition to the application of permanganate, so that it is difficult to judge the effects of either method alone. Recently, however, he has treated several cases with the permanganate alone, and has been surprised at the results obtained. In several typical cases of large areas of lupus where the centers of the patches have undergone cicatrization, whilst the edges have been marked by a thick line of dry crusts, two applications of the paint have caused the crusts to fall off, leaving a dry, healthy scar behind them, the active points remaining being painted over and over again until they finally disappear. The potassium permanganate treatment appears to have little or no effect upon those indurated, shiny, non-ulcerative, slow-growing

patches, which are so difficult to treat either with the light or the *x*-rays. In all other cases the method suggested is worthy of consideration, and the author expresses himself as anxious to hear of the results achieved in other hands. As an adjunct to *x*-ray treatment, he considers potassium permanganate invaluable. He is trying its effect in several other diseases, and hopes to report thereon on some future occasion. He has not noticed any staining result from this method of treatment.

THERAPEUTIC SUGGESTIONS IN DIPHTHERIA.

To the *Medical News* of July 18, 1903, FISCHER writes once more upon this ever interesting theme. He emphasizes the fact, too often ignored, that as a tissue and blood builder no medication equals food. It is therefore imperative to support the general nutrition by proper feeding. Milk diluted with some cereal decoction, like oatmeal, barley, or rice, will be better borne than pure milk alone. Sometimes it is necessary to partially peptonize it to render it more absorbable. If the child is old enough the yolk of a raw egg can be added to the milk. Concentrated beef broth, chicken broth, clam broth, or oyster broth should be thought of. When feeding, it is a good plan to give some of this concentrated broth once in three hours, followed in three hours by a milk feeding, and so alternate. In this manner we give our patient milk once in six hours. Acid fruits, such as oranges, lemons, grapes, and cranberries, are very well borne. When acid fruits are ordered they should be given an hour before milk feeding. Older children can be given raw scraped steak, calf's-foot jelly, and ice cream, which is nutritious and pleasant. When it is difficult to feed by mouth owing to excessive vomiting or to anorexia, or where intubation has been performed, then it is a good plan to let the stomach have absolute rest and to depend on rectal feeding. No more than two ounces should be injected at one time.

> Milk, predigested, 1 ounce;
> Starch-water, 1 ounce;
> Laudanum, 1 minim.

To be injected slowly through a colon tube, after both colon and rectum have been cleansed by a soap-suds enema.

If the small nutritive enema is well retained, then we can repeat the injection once every four hours, and add the yolk of a raw egg to the above formula of milk, starch, and opium. Next in importance to giving the proper dose of antitoxin is the nutrition of the body, which has just been considered. To assure proper assimilation of food requires attention to the bowels. The elimination of toxic elements can only take place by means of the bowels, kidneys, and skin. Normally in febrile conditions there is a general torpidity of the emunctories. Thus it is apparent that a dose of calomel, citrate of magnesia, or an alkaline solution like the milk of magnesia, or a laxative mineral water, will aid in the performance of these functions.

It is advisable to remove the putrid membranes from the nose and throat and also the catarrhal discharges. To do this mechanical treatment consisting of the cleansing of the nose with a salt solution of the strength of one drachm of table salt to one pint of water is useful. A weak (½-per-cent) solution of permanganate of potash solution can also be used to cleanse the nose by the aid of a syringe.

Septic products in the nose and throat will frequently lead to a fatal termination. Their presence is a constant menace to the blood by inviting toxemia. In addition thereto they give rise to fever, and not infrequently septic material will find its way from the nose and pharynx into the Eustachian tubes, causing abscesses. If neglected it may lead to mastoid involvement and brain abscesses or to septic meningitis, with little or no chance of recovery.

By studying the usually enlarged lymph glands, it is surprising to see what good results are apparent after cleansing the nose and pharynx.

The solvent effect of local remedies the author has never been able to see. When papayotin has been used, he has been disappointed in its effect. Creosote vapor, by adding a drachm of beechwood creosote to a pint of water and allowing the air to become impregnated with the vapor, has done some good in a few instances. Lugol's solution of iodine (half strength), applied by means of absorbent cotton, can be recommended. A steam atomizer containing a weak solution of (two-per-cent) sulphurous acid is recommended by Dr.

Nicholas at the Riverside Hospital. The latter has been used by the author, and he recommends it when there are extensive necrotic patches. It is far better than the peroxide of hydrogen. Other local treatment which he has used with benefit is the inunction of unguentum Credé into the cervical glands. Rub it in at least fifteen to twenty minutes two or three times a day. An ice-bag worn continually can also be recommended when there is an extensive swelling.

One of the most important adjuncts to the treatment consists in admitting fresh air. A patient with diphtheria should have all visitors excluded from the room. A good current of air should be admitted night and day, and thus oxygen, so necessary in this disease, is secured. Oxygen is indicated and required when there is the slightest evidence of cyanosis. It will also relieve dyspnea when present. It is especially indicated during bronchopneumonia, which so frequently complicates diphtheria.

It is a wise plan to exclude antipyretic drugs during the treatment of fever in diphtheria. The best antipyretic measures consist in sponging with evaporating lotions such as alcohol and water or acetic ether locally. Cold packs and flushing the bowel with cold water are very serviceable in some cases. When high fever due to pneumonia, to nephritis, or to any other complication exists, it should be treated as though the disease existed independent of the diphtheria.

When fever exists and the child cries continually, then the ears should be examined. Frequently an otitis media will keep up high fever until the drum is ruptured. Ten- to twenty-drop doses of sweet spirit of niter are valuable if given several times a day. During the febrile stage of diphtheria calomel in one-tenth to one-half grain doses, repeated several times a day, is a useful adjuvant in fever treatment.

Owing to the depressing effect of the diphtheritic poisons, stimulation should begin early—strychnine 1/100 grain for a child one year old, repeated three or four times a day. The dose can be gradually and cautiously increased until a systemic effect is noticeable. Children will tolerate very large doses of strychnine just as they will tolerate very large doses of whiskey; they can be combined. Tokay wine, champagne, and coffee are valuable cardiac stimulants. Caffeine citrate and sparteine are also serviceable for enfeebled heart's action. The prognosis of a case of diphtheria is certainly best where the heart has been supported until the toxemia has passed away.

AN ATTEMPT TO OBTAIN A UNIFORMLY ACTIVE, STERILE, AND NON-IRRITATING PREPARATION OF DIGITALIS FOR SUBCUTANEOUS INTERNAL ADMINISTRATION.

A valuable paper has been contributed by HOUGHTON to *Medicine* for August, 1903, on this subject. The profession has long needed an active and reliable preparation of digitalis for hypodermic use. Houghton seems to have found how to prepare such a product, and since the results obtained at the bedside and in the laboratory agree completely, this preparation of digitalis, to which the author has given the name of "digitalone," on account of its composition, can be used for either subcutaneous or oral administration, the proper dosage being 5 to 15 minims subcutaneously, and 10 to 30 internally.

The following advantages may be claimed for this preparation of digitalis: It is of uniform strength; it does not produce pain or irritation at the point of injection; it is readily absorbed and produces typical digitalis action when given per rectum, internally, hypodermically, or intravenously; it is aseptic and remains aseptic if the container is kept stopped; it is convenient and ready for immediate use, either internally or hypodermically, without dilution.

SALIVARY DIGESTION IN THE STOMACH.

In the *American Journal of Physiology* of August 1, 1903, CANNON contributes the results of an experimental research on this subject. He concludes that the evidence that the action of ptyalin is inhibited in the stomach soon after the ingestion of food is inconclusive. The support for this evidence from the commonly accepted accounts of mixing currents in the stomach is not well founded. Observations show that in many animals, including man, gastric peristalsis occurs only in the pyloric

end of the stomach; the cardiac end remains undisturbed by the waves. Food in the pyloric end is soon mixed with the gastric secretions, but food in the cardiac end of the stomach is not mixed with the acid gastric juices for two hours or more, and in this region, therefore, during that time salivary digestion may go on undisturbed.

Examination of the dried contents of the pyloric and cardiac portions of the stomachs of cats, after carbohydrate food mixed with active saliva has been given, shows that the percentage of sugar present is about the same in the two portions at the end of a half-hour, and at the end of an hour the cardiac portion contains about eighty per cent more sugar in unit volumes than the pyloric portion. The actual amount of sugar present in the fundus is relatively much greater than this ratio would indicate, for the fundus contains after an ordinary meal about five times as much food as the pyloric portion.

After an hour the ratio of the sugar percentages in the two parts of the stomach begins to approximate unity again. This change is probably due largely to diffusion of sugar from the fundus into the pyloric end, and to some extent to absorption.

The diffusion of the sugar does not to a marked degree remove the ptyalin from the food.

Position does not very notably affect the differences in sugar production between the two parts of the stomach, although with the fundus lower than the pyloric portion slightly more sugar is found in the fundus than when the opposite relation is maintained.

When liquid food is given, when small amounts of food are given, and when the stomach is massaged, sugar percentages in the two parts of the stomach are nearly the same.

Mixing proteid with carbohydrate food protects the ptyalin from the action of free hydrochloric acid in the relatively small pyloric part of the stomach and on the surface of the cardiac contents. The greater mass of the food lying in the fundus undergoes uninterrupted amylolysis, not because the proteid protects the ptyalin, but because the food in this region is not mixed with the gastric juice.

Much of the starch not changed to sugar is changed to dextrin, and thus, since dextrin is not readily fermented, the food is saved to the organism. The especial value of this process lies in the fact that it occurs to the greatest degree in the fundus, in which region the hydrochloric acid, inhibiting the action of many of the organized ferments, does not for some time make its appearance.

In the early stages of gastric indigestion, if food has been properly masticated, the fundus serves chiefly for the action of the ptyalin; the pyloric portion, after a brief stage of salivary digestion, is thereafter the seat of strictly peptic changes. Later, after two hours or more, as the contents of the fundus become acid, the food in the stomach as a whole is subjected to the action of proteolytic fermentation.

ON THE THERAPEUTIC EFFECTS OF THE SALTS OF RADIUM.

The very extraordinary substance called radium promises rich discoveries in medicine and physics. Our attention is again called to it by MacIntyre in the *British Medical Journal* of July 25, 1903. In an article written by him and published in the *British Medical Journal* of June 6, reference was made to the possible therapeutic effects of radium or its compounds. He then pointed out that the results were not sufficiently definite to state whether or not any effects had been obtained in certain cases on which he had been experimenting. That the salts of radium have, however, an action on diseased tissues cannot be doubted, but it cannot yet be said whether they will take the place of some of the other forces, such as *x*-rays, high-frequency and potential currents, or Finsen's light, at present employed in the treatment of lupus, rodent ulcer, or superficial epitheliomata. All that can be said meantime is that something emanates from the compounds of radium which has a very exciting and, if pushed far enough, even a destructive power on healthy tissues, and that to some extent the radioactivity for which the substance and its compounds are famous is also capable of stimulating tissues in something like the excited Crookes tube.

In the paper referred to a description was given of a burn of the author's arm, brought on artificially by allowing the rays from a few milligrammes of radium to pass through a thin layer of air and

another of mica for one hour. The reaction did not come on at once, and the results have not yet disappeared; that is to say, the reaction has continued for over two months, and looks as if some time would yet be required ere the wound is healed.

At the present time it is impossible to say how this agent produces an action on the healthy or unhealthy tissues, but the same thing may be said of any of the other forces. In the case of radium, however, there are some things known from the physiological standpoint with which we have not yet reckoned in the case of others —at least, if they are present, say when the patient is being subjected to the action of an excited Crookes tube, we have not that definite information about them which is at our disposal in the case of radium, thanks to the admirable work of Monsieur and Madame Curie, Professors Rutherford, J. J. Thompson, and others.

The study of radium is evidently going to throw a considerable amount of light upon questions hitherto obscure in the region of physics, and it is not altogether improbable that we shall be able to say the same thing of it in medicine. To begin with, it seems tolerably certain that the extraordinary power of emission known as radioactivity possessed by the substance is not a simple one. Already three kinds of rays are distinguished: (*a*) Infinitely small positively charged atoms of matter flying at great speed, which can be measured, and the result seen by the bombardment on zinc sulphide screens; (*b*) rays which seemingly correspond to the cathodic rays in a Crookes tube, and also described by Leonard as passing through an aluminum window in the same; and (*c*) rays which evidently correspond to the *x*-rays.

In this connection it is interesting to note that in an excited Crookes tube one can also get a variety of rays, some of them invisible. Some of these are gotten when pumping out the air in a Crookes tube before the vacuum is high enough to give the green coloration of the *x*-ray tube. The writer satisfied himself on this point four years ago, and found that these rays had great penetration, were capable of acting on a photographic plate enclosed in envelopes, and also capable of producing burns on the skin.

The *a*-rays of radium are easily stopped by thin interposed substances, and the *b* or second set have great penetrating power.

There is another curious property of radium and its salts which we have not hitherto had to take into consideration in *x*-ray work generally—namely, that property which has caused such great excitement in the physical world, the power of emitting heat. Evidently the substance is constantly generating heat. If properly packed in some enclosure of a heat-insulating nature, 5° F. may be registered above the temperature of any other substance enclosed in the same way. What effect this may have in therapeutical questions cannot at present be stated.

Bearing in mind the serious destructive effect on the normal tissues and the many resemblances to *x*-rays, the author in his experiments thought it well to keep the substance at a considerable distance from the diseased tissues. The method of application is simple, and it need hardly be pointed out that if equal effects could be obtained therapeutically by radium or its salts it would be a great saving in complicated and expensive apparatus. The method adopted was to have the radium enclosed in a small cell with a mica front half an inch in diameter. This was surrounded by a small piece of india-rubber tube. The glassblower made a number of cones with an opening at the apex into which the india-rubber fitted. They varied in size and depth, but those chosen were usually about half an inch in depth. The radium is thus applied to the parts for a period of twenty to forty minutes daily or longer, and the effects on the patient can be watched with comparatively little risk.

The first case in which the experiment was tried was that of a patient suffering from lupus of the nose and nostrils; but inasmuch as she had recently had *x*-rays applied to the diseased part, it was thought better not to apply the radium in this situation. The patient, however, had developed a small patch of lupus on the dorsal surface of the right hand. The radium was applied daily to this, the exposures varying from twenty minutes to half an hour according to the reaction. Within a week it was evident that the part was healing up, and in three weeks the lesion, which was about half an inch in diameter, had disappeared.

The second case was that of a woman,

aged twenty-eight, suffering from lupus of the nostrils and nose. The area selected was just at the side of the left ala. The same treatment was pursued as above indicated, and within four weeks the lesion, nearly an inch in diameter, had practically disappeared. In this case Finsen's light treatment had been tried last year, and as far as the face was concerned it healed up. The result was not satisfactory, however, as recurrence took place within two months of stopping of the treatment, and the affection had been spreading for the last four months.

In another case of rodent ulcer under the influence of radium the discharge soon dried up, reaction set in, and within a fortnight improvement was evident. This patient is still under treatment. Other cases are under observation, and the results are being carefully noted.

A considerable time must yet elapse ere any opinion can be offered about the true value of radium compounds in the treatment of such cases. Even if its therapeutic value be thoroughly established, there will remain the questions of the time taken to produce the desired effect, the kind of cicatrix or covering which forms, and last, but not least, to what extent they are likely to compete with the *x*-rays, high-frequency, or other forces.

THE BATH TREATMENT OF TYPHOID FEVER.

In an interesting paper, in which he details his results from this plan of treatment, HOWARD, of Melbourne, after praising the plan, speaks of its contraindications, which he thinks are very few. The absolute ones are intestinal hemorrhage, perforation, and thrombosis. As for others, a good deal depends upon the condition of the heart, or if there be a large pleuritic effusion, the author would hesitate to bathe, but not if the amount were small. If there was a valvular lesion, with adequate compensation, that would be no bar. Neither would he refrain if there was a condition of dilatation (due to acute toxemia) in a previously sound heart. But if there had previously been marked feebleness of the heart, he would feel inclined to go slowly, and try a bath at 95° for ten minutes first. If no harm was done, he would make it fifteen minutes, and gradually lower the temperature.

With regard to the commencement of bathing after hemorrhage, the author advises waiting for four or five days after the last trace of blood, and then making a fresh start if the temperature seems to justify it.

Acute bronchitis and bronchopneumonia do not contraindicate it—rather the reverse. The author at one time felt rather chary of putting a patient with a cough into a bath, even at 85°, but now is not so afraid of it. He has not had to do with any very old or very stout people, but believes that the bath in them might be contraindicated, on account of the condition of their hearts.

He was rather surprised on reading Hare's book to find that he bathed menstruating women without any harm resulting. He uses the water 10° to 15° warmer, and finds that the menstrual flow is not suppressed or affected at all.

Objections may be divided into two—(*a*) practical, (*b*) sentimental. Taking the latter first, one is on the score of indelicacy. This has been raised not by female patients, or their friends, or the nurses, but by male hospital officials. The female patient when being bathed is covered, except as to the feet, more than a fashionable leader of society in "evening dress." If we are to have objections to it on the score of alleged indelicacy, we will have to banish female nurses from the male wards, which is absurd.

Another objection was raised by one of the sisters in charge, who had no hesitation in saying that if she had typhoid fever she would have the bath, but would not like to bathe in the same water as everybody else. There is a good deal in that; yet one must remember that every patient on admission is bathed and made thoroughly clean, so they all start square. If we had in a hospital to give every one a separate bath, the system would break down by reason of its cumbrousness and expense. [We are glad to say that in the United States each patient gets fresh water.—ED.]

There are practical objections, but not insuperable, to its use in a private house. First, the movable bath. (Objection is made altogether to allowing the patient to get up and walk into the bath. Conservation, and not wasting of energy, is the object of treatment.) Then about filling the bath. Make the patient take up

his abode as close as possible to the bath-room; then with a few feet of india-rubber hose attached we can half fill the bath with cold water about 75°. If there is hot water laid on, it is easy to bring it up to 85° or 90° with buckets. Lifting should be done at specified hours by the nurse and a male assistant in most cases. The emptying of the bath in such a case would be a serious trouble. In a private house, if in an upstairs room, some arrangement in the way of siphoning might be extemporized to obviate the use of the bucket.

The author has had so little experience with hydrotherapy in typhoid fever other than sponging and the bath that he has refrained from instituting comparisons.

As for drugs during the bath treatment, he uses quinine in two-grain doses every four hours. He carefully refrains from such drugs as antipyrin and antifebrin.

No cases have been called typhoid fever whose temperature became normal within a fortnight.

As for such points as the question whether the duration of the disease is shortened, and if so by how much, whether the frequency of relapses and complications, like hemorrhage and perforation, is greater or less, the author feels that the number of separate cases has been insufficient to work upon, so has refrained from attempting to draw any inferences about them. At the same time, he is of opinion that bathing makes no difference.

THE DIURETIC VALUE OF SALT-SOLUTION ENEMATA, ESPECIALLY AFTER RENAL OPERATIONS.

In the *Maryland Medical Journal* for August, 1903, BROWN contributes an article bearing this title. He recalls the fact that a few years ago the *Maryland Medical Journal* published a short article on the specific gravity of the urine after salt-solution enemata (Johns Hopkins Hospital Reports, August, 1898). These experiments, ten in number, were designed to determine the effect of enemata of normal salt solution upon the specific gravity of urine, although approximately the same results would have been obtained undoubtedly if water had been used in place of salt solution. The method employed was as follows: The patient immediately after voiding urine was given 500 cubic centimeters of normal salt solution by rectum. The patient was not allowed to drink water or any other fluid during the next four hours, and during this period the urine passed was carefully collected. In some cases urine was voided but once, in other cases twice, but in them all between 250 and 400 cubic centimeters was voided (that is, between one-half and four-fifths of the quantity given by rectum), while the average specific gravity fell from 1.016 to 1.008.

These results demonstrate the marked diuretic value of salt-solution enemata, and suggest that it furnishes a valuable method of flushing out the kidneys in conditions where such a flushing out is of prime importance.

Among the most important of such conditions may be mentioned that occurring after nephrectomy, nephrotomy, and nephropexy; in fact, to a lesser extent all operations in which ether is the anesthetic are associated with a diminution in urinary secretion, and might therefore be regarded as cases favorable for the application of this treatment.

As a result of these observations it is the custom at Dr. Kelly's private hospital to carry out the following regimen in all cases in which the kidney has been operated upon: One pint or more of normal salt solution is administered by rectum every six, eight, or twelve hours, according to the necessity of the case, for a number of days after operation. In the six cases of nephrectomy and the twelve or more of nephropexy in which this procedure has been carried out the secretion of urine has been very free, very often even larger quantities than normal being passed during the days on which this procedure has been carried out. Besides this, it was noteworthy that the convalescence of these patients was much more comfortable than the usual run of renal patients, the nausea and headache especially being markedly diminished.

In other operative cases it is hardly necessary to give the enemata with such frequency, but one or more were always given in the mildest cases.

The method is so simple, so absolutely free from unpleasant concomitants, and so easily carried out, that it would seem highly advisable that it should be incorporated among the essential procedures in the after-treatment of all cases operated upon under general anesthesia.

In the few cases in which nephrectomy was performed and in which there was a marked diminution of urine before operation, often associated also with albumin and casts, coffee or infusion of digitalis was added to the enema on several occasions.

Brown realizes that salt-solution enemata are used frequently in a sporadic way, but the object of this small contribution is to insist that great value can be obtained by its systematic use at frequent intervals, not only in cases in which the kidney has been operated upon, but also in all cases where ether, an anesthetic peculiarly irritating to the kidneys, has been used, and even in a large number of medical cases where it is essential to promote diuresis rapidly and effectively.

A NOTE ON THE TREATMENT OF CHOREA BY ERGOT OF RYE.

No less an authority than EUSTACE SMITH contributes to the *Lancet* of July 18, 1903, his views as to this use of ergot. He reminds us that ergot of rye has been little used in the treatment of disease in the young subject, although as a sedative in cases of nervous disease in children its value is great; and he then calls our attention to the usefulness of this drug in the treatment of chorea when given in adequate dose. How it operates in such cases —whether it exerts a direct sedative action upon the nerve tissue or controls it indirectly by its influence upon the blood supply of the spinal cord—he leaves to others to decide. The fact, however, remains that under its use the disordered movements soon begin to moderate and quickly come to an end.

With regard to any possible evil influence of the drug upon patients, he has never observed any. The symptoms described under the head of "ergotism," if attributed rightly to the ingestion of diseased rye flour, can only have been caused by the long-continued and excessive use of grain heavily ergotized; indeed, according to Trousseau, unless rye bread contains ergot in enormous proportion its consumption is not followed by ill effects, even when it forms the main food of a people for years altogether. When given in medicinal doses it seems to be quite harmless. The writer has given the fluid extract in doses of one drachm every three or four hours for many weeks together to children of seven or eight years old, and in doses of 20 drops or more for many months at a stretch, and has never seen any ill consequences arise from its use. If it has done no good, at any rate it has done no harm, and in the majority of cases the beneficial effects of the drug have been very decided. While taking ergot the pulse falls in frequency—perhaps as much as 15 or 20 beats—but he has not noticed dilatation of pupil or heard complaints of headache or nausea or abdominal pain. These symptoms have been referred to the action of ergot, but given in such doses as described the drug has not produced them.

Although useful in other varieties of nerve disorder, it is in cases of chorea that the value of ergot is shown most plainly. In this complaint the bromides, chloral, and other similar drugs are not very satisfactory in their action. To be of benefit they must be given in doses which tend to depress, and their influence too often is only temporary. Arsenic in doses of 10 minims or more of Fowler's solution three times a day is a remedy more to be relied upon, but it is often not well borne, and if it agrees, requires some considerable time to exercise its full influence, although improvement, when it occurs, is usually permanent. Ergot acts more quickly than arsenic; it never, as far as the author has observed, disagrees, and is successful when arsenic has been given in vain. He orders to children of all ages one drachm of the fluid extract to be given diluted every three or four hours, and he enforces complete rest in bed. Confinement in bed, it is needless to say, must form an essential part of all treatment for this complaint, for as long as a child is up and about no remedy is given a fair chance of success. In using ergot or any other sedative for chorea it is important as a first step to make sure that the emunctory organs of the body are in good working order, for the action of drugs in quieting the unbidden movements may be gravely hampered by the presence of some passing disturbance of function.

The author cites one recovery, which no doubt was exceptionally prompt, but the case illustrates well the speed with which the disease may be overcome in favorable cases by the united action of the two drugs. The case was a fairly bad

one, and he knows of no other remedy which would have brought the complaint to a successful issue in so short a time. The addition of a drop or two of strychnine solution to each dose of the ergot seems to have a marked effect in quickening the activity of the latter. It is comparatively lately that he has made use of this combination in chorea, but has no doubt whatever that improvement follows more speedily with it than with the ergot given alone.

It is sometimes necessary to push the dose of the remedy, for the quantity required to exercise a controlling influence over the movements varies according to the susceptibility of the patient, and perhaps according to the age. He thinks that boys require larger doses than girls.

Cases might be cited to show that the ergot of rye can be given to children in large doses without the risk of harm; that as a sedative to the nervous system its value is great; and that if the quantity given at first prove insufficient, no fear need be entertained of increasing the dose of the drug until a definite impression is made upon the complaint. Thus, the author has given the dose of 1½ drachms every two hours during the day and several times in the course of the night without exciting any unwholesome symptoms, and continued the remedy in the same dose and with the same frequency for days together until signs of improvement were seen. In all cases the ergot was pushed until it produced a beneficial effect, and it was always noticed that complete recovery followed quickly upon the first signs of amendment. The remedy ought not to be left off directly normal control over the muscles has been restored, but should be continued as long as any abruptness of voluntary movement remains. It is only when this has completely passed away that the ergot can be stopped without fear of a relapse.

CHLORETONE IN SEASICKNESS.

A contributor writes to the *Lancet* of July 11, 1903, of his experience with chloretone in seasickness to the following effect:

"A short time ago I read in the *Lancet* some correspondence relating to the usefulness of chloretone in seasickness. Personally I am a wretched sailor, and as I was about to take a fortnight's cruise, Messrs. Parke, Davis & Co. supplied me with capsules containing five grains of the drug. It was not long after we had lost sight of land that the horrible feeling in the epigastrium began to make itself felt, so I promptly took ten grains of chloretone. In half an hour all nausea had disappeared, and I went below and had a good dinner. Before turning in for the night I took another capsule, and after a good night's rest had a splendid breakfast. After three days we had some rough sea, when it was almost impossible to stand on deck. I took five grains of chloretone every two hours for six hours. I had not the slightest nausea; most of the passengers, stewards, and stewardess were sick, and I was one of the few who went down to dinner, which, I must say, we had to partake of under difficulties. There is no doubt that the drug does increase the appetite, and I certainly found no bad effects from its use. Many times I have been in the North Sea, but never once before without having several hours of severe sickness; and during the whole of this last cruise, after taking chloretone, there was not the slightest sign of seasickness."

STUDIES ON THE ACTION OF ALCOHOL IN DISEASE, ESPECIALLY UPON THE CIRCULATION.

Cabot has recently contributed to the *Boston Medical and Surgical Journal* of July 23, 1903, the results of a research along these lines. He concludes from clinical experiments made upon forty-one patients, mostly cases of typhoid fever, in which 1105 measurements of the blood-pressure were made before, during, and after the administration of alcohol in therapeutic doses, that neither the maximum nor the minimum blood-pressure showed any variations that could reasonably be referred to the action of the alcohol. So far as was determined by the methods, and in the cases used in this research, the action of alcohol upon the circulation was *nil*.

The same neutrality and apparent inertness of therapeutic doses of alcohol in relation to the temperature, pulse rate, respiration rate, appetite, sleep, delirium, and secretions (renal and cutaneous) of 309 patients suffering from a great variety of diseases was the total impression de-

rived from 2160 observations in these cases.

These observations are not interpreted as proving that alcohol is useless or useful in disease. As a narcotic and vasodilator it may have an important place in therapeutics.

More important probably than any of the questions investigated so far is the problem of the effect of alcohol upon the power of the sick man's blood to protect him against infection and other harmful influences. The studies of Abbott and of Mircoli have begun to clear a path in this direction, and we have a certain amount of evidence relative to a similar problem in the lower animals. But as the results of studies regarding the action of alcohol upon animals or upon healthy men cannot be used as evidence of its action in sick men, there is a good field for experimental work in this direction along the lines of Ehrlich's newer methods.

THE THERAPY OF GALL-STONES.

HERTER states in the *Medical News* of September 26, 1903, that few facts have as yet emerged from the nebulous region of gall-stone therapeutics. We have learned that the surgeon is far more successful than the physician in the treatment of established cholelithiasis. We have learned also that certainly most of the drugs to which cholagogue virtues were once attributed are really undeserving of confidence. The bile salts and possibly the salicylates possess cholagogue properties, but whether these can be turned to account to bring about the solution of a gall-stone must be considered very doubtful. It is certain that through the free use of fat in the dietary the percentage of fat in the bile may be increased above the average, but we do not know whether the increase is ever so great as to cause a marked solvent action on the cholesterin of the gall-stones. Such an action appears to be improbable. Other constituents than cholesterin are insoluble in fat. The experimental results obtained from prolonged feeding of fat raise the question whether it is really wise to give patients a rich oleaginous diet, especially in those instances where there is obesity and an inactive habit of life. Restriction both in fats and carbohydrates seems the more rational course, and with this there should be free muscular exertion when this is practicable.

It seems probable that in future physicians who treat patients with gall-stones will direct their attention largely to measures designed to favor the subsidence of cholecystitis. How much it is possible to influence such a condition we cannot positively say. Hygienic influences that raise the general bactericidal powers of the cells presumably have a beneficial effect upon cholecystitis of infective origin. The value of antiseptics is a matter which future studies will have to decide, but it is not unreasonable to hope that some bactericidal effects will be shown to result from the use of certain antiseptics, which like benzoic acid may enter the bile.

FULMINATING PURPURA HEMORRHAGICA TREATED BY ADRENALIN.

In the *New York Medical Record* of August 22, 1903, Dr. MACADAM reports a case of fulminating purpura hemorrhagica which he believes was cured by the administration of adrenalin. At one time the child was almost moribund, unconscious, ashy white, and bleeding from the nose, stomach, lungs, bowels, and kidneys. Although the case was considered hopeless, 20 drops of adrenalin solution in a teaspoonful of water was given internally. At the end of fifteen minutes the child regained consciousness, and a little color appeared in the cheeks, the pulse becoming perceptible. At this time 10 drops more of adrenalin solution was employed, and later 10 minims of it was given every three hours in orange juice. The illness of the child continued for several weeks, although gradual improvement took place. Three weeks later the adrenalin was discontinued, and the child was able to walk on the street with her parents, and at present is entirely well.

THE TREATMENT OF AGITATION AND INSOMNIA IN MENTAL AND NERVOUS DISEASES.

TRENEL discusses in *La Presse Médicale Belge*, September 6, 13, and 20, 1903, the relative value of the drugs commonly employed in these conditions. He thinks that chloral has a wide range of applicability, and that there are very few cases which will not yield to its influence provided it be administered in sufficient quan-

tity. Divided doses often act better than a single massive dose. Morphine, in the author's opinion, is inefficacious in acute mania, but acts well in the agitation and insomnia of melancholia. Hyoscine he would interdict in delirium tremens, and would employ it only with the greatest caution in the excitement of paresis. In the excitement of chronic mania it often gives good results, but it should not be used habitually to control the violence of acute mania. Conditions of depression contraindicate its use. Potassium bromide has proved of value to Trénel in the treatment of irritability and insomnia occurring in neurasthenia and hysteria. Hydrate of amylene and chloral-amylene are considered reliable hypnotics in cases of simple insomnia. Ural and hypnal are considered unreliable. Heroin and dionin have given good results when used as substitutes for morphine during the period in which the latter drug is being withdrawn in cases of addiction. An exhaustive study of the different hypnotics is made.

LEMONS IN PURPURA HEMORRHAGICA.

The astringent properties of the lemon and its power in arresting hemorrhage from the lungs are much dilated upon in the popular text-books of "domestic medicine." At the same time, it is within the knowledge of almost every medical man that this fruit, when sucked in the raw state, has succeeded in preventing the onset of an attack of hemoptysis, or at any rate warded it off until the "dreaded hours of night" have passed. In some of the more severe varieties of purpura, the powers of the physician are often taxed to the utmost. Turpentine, ergot, adrenalin, and the mineral acids may have all been tried and yet in vain. It is encouraging, therefore, to learn that Pick, of Vienna, has successfully treated five cases of purpura hemorrhagica with lemons, a little arsenic in the shape of Fowler's solution or aspirin being also given to two of them. Six to ten lemons a day were administered, and no ill effects were noticed, except that in the larger quantities they produced a mild purgation. Two of the cases had developed in connection with malaria, and it is interesting to note that in the Roman Campagna stewed lemons form a popular remedy against the disease, the fruit being sliced with the peel, and the filtrate taken by the tablespoonful. The lemon juice appeared to act promptly, though two of the cases of purpura were very severe. Hitherto the employment of the lemon in purpura has been chiefly confined to those cases in which there is also a scorbutic element, and here, together with lime juice, it has met with great success. When scurvy is out of the question it cannot be the antiscorbutic properties of the lemon which give it its efficacy, but rather some astringent principle which acts directly upon the vessels.—*Medical Press,* Sept. 9, 1903.

OBERST'S METHOD OF ANESTHESIA.

Although it is more than twelve years since Oberst's method of producing local anesthesia was first published, it has never received in this country the amount of attention it deserves. The method must be clearly distinguished from Schleich's—the commonly practiced method of infiltration. In the latter the terminal nerve twigs are anesthetized by the direct injection of cocaine solution into the operation area itself; in the former, the circulation being stopped, the nerve trunks themselves are paralyzed by cocaine injected around them, producing anesthesia of the entire extremity. Mr. Struthers, of Leith, calls the attention of surgeons to its advantages in a recent article. He has used it in some fifty cases recently, and found it very useful in all operations on the digits—amputations, removal of nails, operation on whitlows, etc., as well as in operations on the penis. He does not advise the attempt to perform operations on other parts by this method, owing to the difficulty of producing sufficient anesthesia without injecting the solution into the large nerve trunk itself. Eucaine-B. may be substituted for cocaine.—*Medical Press,* Sept. 9, 1903.

ACID PHOSPHATE OF SODIUM AND ADRENALIN IN VESICAL DISEASE.

In the issue of September 9, 1903, of the *Medical Press* WHEELER reports his use of those agents in these conditions of disease. He says that special cases of chronic cystitis having come under his notice lately, one case complicated with violent hemorrhage, a note on the treat-

ment found most efficacious in both conditions may not prove uninteresting to those who have not attained good results by employing the ordinary classical methods and drugs in cases unfit for operation.

In the first case, a gentleman aged eighty-five, with a history of gout, consulted the author with the well known story of the frequency of micturition, especially at night, depriving him of his rest and comfort. No enlargement of the prostate could be detected per rectum, and a No. 8 catheter could be passed with little difficulty; about six ounces of residual urine was drawn from the bladder after the patient had satisfied himself it was empty. Sounding revealed nothing. The urine was acid, contained oxalates and urates, and a quantity of blood, but no epithelial shreds or casts. An alkaline medicine was prescribed, and the gout treated, with the idea that the hemorrhage might be associated with the passage of "gravel." In this case the use of the cystoscope was not had recourse to on account of the patient's advanced years, and an extremely sensitive and nervous disposition. Suffice it to say that one day after drawing off the residual urine a violent hemorrhage occurred, notwithstanding the gentleness practiced in passing the catheter. This, as it afterwards turned out, was not due to catheterization, but at the time it appeared possibly a small portion of a villous tumor or other growth had been detached. The hemorrhage on this occasion was therefore not treated locally, but continued for six days, the patient passing water every ten minutes laden with blood. An operation was refused, so the treatment consisted in absolute rest, morphine suppositories, ice to perineum, large doses of calcium chloride, and hypodermic injections of ergot. At first all these drugs were used simultaneously, each having a distinct duty to perform. On the sixth day the hemorrhage had entirely disappeared; on the third day it was at its height; on the fourth the blood passed in clots and not so frequently, but with much pain. The patient made a good recovery, only to get another attack at a time when no catheter had been used. A No. 8 French catheter was at once passed, all blood-clots washed out, and a weak solution of the adrenalin chloride of commerce injected. About half a drachm in an ounce of hot water was the strength and quantity used. The patient, though micturating frequently before the injection, and passing quantities of pure blood, after the injection of adrenalin chloride had no further trouble. The urine passed regularly and was free from blood. An attack similar to his first would have certainly ended fatally. This was only avoided by the treatment adopted. He remains now for three weeks or a month without any blood in the urine, then gets a severe hemorrhage, to be checked again by three or four injections of adrenalin.

The same patient in the intervals suffered from a chronic cystitis with ammoniacal, purulent urine, and as in other similar cases, the author found without exception that the administration of acid sodium phosphate NaH_2PO_4 is the most beneficial, especially when combined with a urinary disinfectant.

℞ Acid. sod. phosphat., 2 drachms;
Urotropin, 2½ drachms;
Infus. uvæ ursi, ad 6 drachms.
Sig.: One and a half ounces, t. i. d.

This is the prescription employed with excellent effect in three recent cases. The patients complain greatly of thirst when taking the medicine, and it should not be given if there is any nephritis or albuminuria. In one case uremia was supposed to have arisen in consequence of employing the drug in cystitis when the kidneys also were diseased. In the above note the author makes reference only to patients unfit for operation. A suprapubic cystotomy, or removal of a tumor, in suitable cases is the proper procedure for a surgeon. In the three cases above referred to acid sodium phosphate had rendered ammoniacal urine acid in twenty-four hours.

Care should be taken that the chemist does not make up the prescription with the official sodium phosphate Na_2HPO_4, instead of the acid sodium phosphate NaH_2PO_4, the normal urinary acidulant. This mistake occurred in the author's experience, the chemist having never before seen the acid sodium phosphate prescribed. The symptoms detailed above follow closely those of villous tumor—*i. e.*, intermittent profuse hemorrhage, with no signs or symptoms of stone or malignant disease. The man being weakly, and eighty-five years of age, excluded operation or even cystoscopy, even if he himself

should consent to such a treatment. The adrenalin acts admirably when there is a hemorrhage; the acid sodium phosphate saves him from many of the terrors of cystitis. He is at present well and out every day for a walk.

THE PAROXYSMS OF WHOOPING-COUGH TREATED BY PULLING THE LOWER JAW DOWNWARD AND FORWARD.

Naegeli some time since proposed this method of treating the paroxysms of whooping-cough, and SOBEL in the *American Practitioner and News* of August 15, 1903, reports his experiences with this plan.

1. Pulling the lower jaw downward and forward controls the paroxysms of whooping-cough in most instances and most of the time.

2. The method is usually more successful in older children than in younger ones and in infants.

3. In cases without a whoop the expiratory spasm, with its asphyxia, is generally overcome, and in those with a whoop the latter is prevented.

4. As a single therapeutic measure for the control of the paroxysms it deserves a place in the treatment of pertussis, and is as successful as any single drug or even more so.

5. Mothers, nurses, and other attendants should be instructed in its use in order that the oncoming attacks, especially at night, might be arrested.

6. The manipulation is harmless, painless, and easy of application, without any of the ill effects of drugs; it offers a maximum good effect with a minimum derangement.

7. The only contraindication to its application is the presence of food in the mouth or esophagus.

8. The patients treated in this manner are less likely to suffer from complications and sequelæ than those treated only medicinally; they emerge from the disease in far better condition, less exhausted, and less emaciated, because vomiting has been controlled.

9. It is advisable to try the maneuver in other spasmodic coughs and laryngeal spasms (laryngismus stridulus, pressure of enlarged cervical and bronchial glands, influenza, and in glottic spasm in catarrhal laryngitis), although experience would seem to show that it is far less efficacious in these conditions than in whooping-cough.

10. This method, being directed mainly to the control of the glottic spasm, does not preclude the advisability of supporting and sustaining the patient, guarding his gastrointestinal tract, establishing equilibrium in the nerve centers, and affording him every possible hygienic advantage.

11. It is particularly indicated in instances complicated with diffuse bronchitis, bronchopneumonia, convulsions, epistaxis, subconjunctival or subcutaneous hemorrhage, or sublingual ulceration, and in those children who by virtue of tender age, the presence of rachitis, scrofula, or general debility are predisposed to serious complications and sequelæ.

THE PROPHYLAXIS OF GONORRHEAL OPHTHALMIA.

The *Medical Press* of September 9, 1903, discusses this question in the following words. Reference to this matter is also made in one of our recent London letters.

A short time ago a discussion took place at the Obstetrical Society of London on gonorrheal ophthalmia and its preventive treatment. Its general trend was to the effect that routine treatment of some kind was advisable in all cases, but that perhaps the particular treatment recommended by Credé was too strong, and that a milder and more bland antiseptic should be used. This decision did not seem to err on the side of boldness, at least to those who had been accustomed to see Credé's treatment rigorously carried out. A letter has, however, appeared in a contemporary from the facile pen of Professor Japp Sinclair, which places the decision of the Obstetrical Society in quite another light. Professor Sinclair, referring to this discussion and to the rules of the Central Midwives' Board, considers the medical profession in England has too often made itself ridiculous, by adopting without criticism German methods, to be able to afford to further stultify itself by insisting upon the routine adoption of Credé's method, even amongst the poorer classes.

Dr. Sinclair is always a most interesting and informing writer, whose opinion is received with the respect it deserves, but it is feared and hoped that in this instance he will not meet with general approval. Laying aside the broad objection referred to above—that nitrate of silver is too strong—Dr. Sinclair objects to Credé's methods on several grounds. The first of these is perhaps the result of that runaway—a facile pen. Speaking of the enforcing of Credé's method he says: "Poverty is to be the sad qualification for the moral and physical resort. Every poor woman must see her infant start life with unnatural tears and conjunctivitis, and she and the simplest and purest minded of her female relations must be initiated by an ignorant midwife into the mysterious working of venereal disease." Surely this is not the language to employ in speaking of a practice of preventive medicine, which, even if it has not yet become general in England, has long been the routine treatment at the Rotunda Hospital in Ireland. Professor Sinclair then proceeds to object to Credé's method on the ground that it is unnecessary, that England is not Leipzig, and that the proportion of cases in which intra-parturient gonorrheal infection of the newly-born occurred is too small to render the adoption of so rigorous a procedure as Credé's advisable. This, of course, is an opinion, and when emanating from so high an authority as Professor Sinclair is entitled to every respect. For ourselves, we should be inclined to question both assumptions, to express a doubt as to whether gonorrheal infection is so rare, and to disagree *in toto* with the statement that Credé's method is too "severe."

Professor Sinclair brings the statistics of a small annual number of deliveries at the Manchester Maternity Hospital, where Credé's method is not adopted, and contrasts them with the statistics of the Leipzig Frauenklinik, where it is adopted. In answer to this the following facts are quoted directly to the point: At the Rotunda Hospital, up to or about the year 1894, Credé's method was not adopted. The then Master did not at that time consider its adoption necessary, because he did not find that gonorrheal ophthalmia occurred in the hospital. From that date onward he changed his mind, and Credé's method was adopted as a routine practice, because the surgeons at the Dublin Eye Hospital informed him that numerous cases of gonorrheal ophthalmia were brought to the hospital dispensaries in infants who had been born in the Rotunda Hospital. From the time of the routine adoption of Credé's method this ceased to be the case. As for the alleged severity of the treatment, undoubtedly a very small proportion of infants suffer for a day or two from a slight catarrh—the result of the silver—but from experience during three years in no case did the writer see an infant leave the hospital the worse for the treatment. Further, the treatment was in almost all cases carried out by a probationer.

It is believed that Professor Sinclair could have applied his great powers of criticism with more advantage to other portions of the regulations drawn up by the Central Midwives' Board than to the paragraph to which he objects and to the treatment to which that paragraph lends sanction. How many women lose their lives because of vaginal injections given with unsuitable apparatus? Yet the regulations say that a midwife shall carry "an appliance for giving vaginal injections"—presumably a Higginson syringe. Would not more explicit directions have been of value? How many patients lose their lives from the routine administration of vaginal douches? Yet the regulations contain no word of condemnation of such a practice. How many patients lose their lives from the use of dirty lubricants by the nurse? Yet the regulations compel a nurse to carry "an antiseptic lubricant for smearing the fingers, catheters, douche nozzles, and enema nozzles before they touch the patient." Once get the regulations free of actively harmful directions and then will come the time for criticizing and amending those that perhaps can be improved. It is not for a moment suggested that Professor Sinclair is responsible for the foregoing insufficient and antiquated directions. If the truth was known, it is probable that it would be found that but for his activity and sacrifice of valuable time they would have been still more insufficient and out of date. The point to consider is that it is unwise to cavil with exaggerated emphasis at precautions that have been proved to be harmless—even though in some cases unnecessary—when considerable evils still call for remedy.

CONCERNING SOME POINTS IN THE TREATMENT OF TYPHOID FEVER.

BUTLER contributes to the *Medical News* of September 26, 1903, his opinions in regard to this always interesting theme. For the cold mitten rub there is required a rather rough bath mitten, a bath thermometer, a vessel holding a gallon of water, reduced to a prescribed temperature by ice, a rubber sheet, a blanket, a linen or Turkish sheet, and a couple of towels. The rubber sheet covered by the blanket is placed under the patient, the body clothing removed, and the sheet placed over him. The face, head, and neck are wet with cold water, or, in women, a wet napkin is placed over the face. The front of the thorax is then uncovered, and the nurse, dipping her mittened hand into the water, rubs the surface vigorously until it is well reddened, frequently redipping the mitten in the water. When a good reaction of the skin is secured, the thorax is quickly rubbed dry with a towel. The remainder of the body is similarly treated, in order, right arm, left arm, anterior aspect of the legs; then, the patient having been turned upon his face, the back, and posterior aspect of the legs. The mitten rub may be repeated at intervals of three to six hours when the fever reaches or exceeds 102.5° F.

For the first rub the temperature of the water may be 85° F., for the second 80° F., for the third 75° F. Usually 65° F. is the lowest temperature required, but the water may be reduced to 45° or 40° F. if greater stimulation is necessary. The cold mitten rub has given tonic effects quite as good as those of the cold tub, with a very desirable minimum of disturbance of the patient. It has a very different action from ordinary sponging, in which the surface of the body is merely moistened with cold water, applied by a soft cloth, without friction.

Towel Bath of Baruch.—For the employment of the towel bath, the bed is prepared as for the mitten rub. Required are two linen towels, a large cup, a sponge, a basin of water at 85° F. and another at 70° F. The patient is turned upon his abdomen; a towel having been dipped in the 85° F. water, this is, without wringing, laid smoothly over the entire back, gluteal regions, and thighs, using both towels if one is not large enough. With the cup, the water at 70° F. is poured over a part of the back, *e.g.*, the upper left, and this part rubbed vigorously with the flat hand until the surface is felt to be warm, and another cup of water poured on followed by more rubbing. This may be repeated three times unless the part does not become warm. The remaining parts of the back and the thighs are gone over in a similar manner and carefully dried. The patient is then turned on his back and the procedure repeated over the anterior portion of the body and thighs. From time to time, as required, the water which has flowed upon the blanket is sopped up and removed with the sponge. According to indications the towel water may be reduced to 60° F. and the cup water to 50° F.

The Ice Rub.—The ice rub is distinctly more vigorous in its action, and like the cold tub requires discrimination in using. The bed having been prepared with the rubber sheet and blanket, the patient may either be wrapped in a sheet dipped in 85° F. water, or the wet towels may be used as in the towel rub. But instead of pouring water on, a part of the surface is rubbed with a flat, smooth piece of ice, held in a wash-cloth, followed by friction with the flat hand until it warms up. This is to be repeated until the part remains cool. The whole body is successively gone over in this manner, and carefully dried.

The first method, the cold mitten, will suffice for nearly all cases. If a more refrigerant and stimulating procedure seems necessary, the towel bath may be used, and finally, if required, the ice rub. The nurse should promptly stop the giving of any one of these hydriatic measures if the patient's teeth begin to chatter. Complaints of simple chilliness may be disregarded.

Medicinal Treatment.—It is probable that most cases of typhoid fever are overmedicated. It is simply appalling at times, even in hospital service, to see the list of remedies grow in bulk, by almost imperceptible additions at each visit of the physician, and it may require considerable self-control not to yield to the natural impulse which urges one to relieve or to meet every indication, whether important or not, which may arise. This piling up of remedies is extremely apt to disorder the stomach and to cause certain incidental untoward and undesirable by-effects. Many cases of typhoid fever do best with

little or no medication, but at the same time we should have no sympathy with therapeutic nihilism, and in the face of gradual cardiac failure, pneumonic complications, intestinal hemorrhage, or similar serious developments, no one need hesitate to employ heroic medication if it seems necessary. There is neither reason nor humanity in allowing a case to progress steadily toward a lethal ending without employing medicaments which have proved indubitably life-saving in many instances.

There are but two points in medical treatment of which the author speaks—intestinal antisepsis and the checking of intestinal hemorrhage. Few well informed men now expect to accomplish anything in aborting typhoid fever by destroying the bacillus in the intestines. The proved presence of the germs in the blood and internal organs forbids any such anticipations. Nevertheless, clinical experience satisfies us that the ordinary putrefactive and fermentative changes which take place in the intestinal tube can be favorably modified by antiseptics, and that in consequence excessive tympanites, always an event to be deplored and dreaded, is of much less common occurrence when suitable remedies are systematically employed. Among eligible intestinal antiseptics are salol, guaiacol carbonate, creosote carbonate, zinc or sodium sulphocarbonate, bismuth, and turpentine. These may be given in moderate doses at intervals of four to six hours. An initial dose of calomel is desirable, and during the course of the disease, especialy when constipation exists, and the stools are fetid, small doses of calomel one-fifth to three-fifths grain, with one-tenth to three-tenths grain of ipecac and a little sodium bicarbonate, have often proved of good service in lowering temperature and relieving general and gastro-intestinal discomfort. As a rule daily enemata are sufficient.

For the medical treatment of intestinal hemorrhage three remedies have proved to be of much value. The first two, which act by increasing the coagulability of the blood, are calcium chloride and gelatin; the third, an arterial constrictor, is the powdered suprarenal or its active principle adrenalin. A pint or more of a 10-per-cent solution of gelatin may be given in the twenty-four hours; 20 to 30 grains of calcium chloride every two to four hours; and five or more grains of the desiccated suprarenal every four hours, up to half a drachm in twenty-four hours. The results have been sufficiently encouraging in personal cases to make the administration of these remedies a routine measure, in preference to the opium, ergot, and lead of former treatment. The use of moderate doses of opium or its alkaloids is always advisable in order to quiet the restlessness and excitement usually attending internal hemorrhage, and to sustain and regulate the action of the heart.

TYPHOID FEVER.

The question of the treatment of typhoid fever is perennial. The different methods have been advocated, tested, and disregarded. Tartar emetic has in some hands given unusually good effects, especially in India, and the older journals and records tell of good results from bleeding. Murchison trusted to dilute hydrochloric acid, and his classic work shows unusual success in the treatment. Pure phenol was not less helpful in other hands. Then came the search for intestinal antiseptics, and benzozone and the sulphocarbolates were recommended on scientific grounds. Now the medical fashions changed to antipyretics—the truly scientific treatment, lessening tissue waste and quieting the abnormal action of the heart. Quinine and a number of synthetic remedies were introduced; bathing, douching, and so forth were now lauded for their wonderfully good effects. Drugs are not decried in the treatment of typhoid fever or any other disease, but it is thought more attention should be paid to their selection and action. The synthetic antipyretics did a great deal of harm in their day, as physicians came in time to learn, and to-day the prescriber is in no hurry to run down temperature by drugs of which he too often is ignorant, neither does he expect that antiseptics will alter the secretions; he recognizes that until the intestinal mucosa resumes its normal function the secretions will, in spite of antiseptics, be septic. Some unpleasant results followed the cold bath treatment. The effect on the dilated peripheral vessels of the cold water was not always beneficial. Even before immersion the patient was too often terrified by the idea of a cold bath. Reference is made to these details because

in typhoid fever rest is considered essential, supplemented when necessary by drugs, or sponging with water at a temperature of not less than 70° F. Of drugs, none are known to be better than Murchison's dilute hydrochloric acid mixture.—*Medical Press,* Sept. 9, 1903.

BEST METHODS TO PREVENT HYDROPHOBIA.

CABOT states in the *Medical News* of August 15, 1903, that the following plan is the best to prevent hydrophobia:

If the bite is on the face, it is most serious; other exposed parts of the body, as the hands and arms, are next in importance. The microörganisms of rabies are believed to be fermentative in character, lying localized for at least twenty-four hours, and then infecting the system by way of the nerves and not directly by the blood. The extent of the wound has much less significance than its position and after-treatment. A wound no deeper than a pin scratch may be the cause of an infection. In three cases of hydrophobia out of six under observation, the wounds were the merest scratches.

In cases of wounds about the face and exposed parts, the patient should be put under a general anesthetic, if necessary, and the wound scrubbed out with a brush, first with green soap, then with bichloride of mercury 1 to 1000. This should be done as if for an operation. After this, fuming nitric acid should be carefully applied by means of a pointed glass rod. The wound should then be dressed surgically. If no anesthetic has been given, the author usually employs first cocaine, after the scrubbing, then pure carbolic acid followed by fuming nitric acid. This must be done as early as possible; but he has demonstrated by careful experiments with guinea-pigs that it is of value even as late as two days. At the end of twenty-four hours he has shown in a large number of guinea-pigs that this method will save 91 per cent of infected cases. If we cannot obtain nitric acid, the actual cautery is next best. It is, however, difficult to see each small point while using this agent. Nitrate of silver, which is so popular, saved only 55 per cent, and therefore should not be used. However, simply cleansing and scrubbing out the wound with soap and water had some effect, saving 31 per cent of guinea-pigs infected with rabid virus. In his series of experiments the author found that about 13 per cent of control animals infected with the virus did not develop the disease. This fact must be remembered, but it does not affect the general results of the experiments.

Treatment therefore of the wound, even at the end of forty-eight hours, is of distinct value, and when done within twenty-four hours and properly done, it is believed to be of more value than the Pasteur method of protecting the system against possible infection. Both methods, however, should be used.

The dog which has been guilty of the biting in every instance should be preserved alive, if possible, and kept under observation for a week. Then, if it remains well, there is no danger. If the dog dies, the brain should be preserved for examination and inoculation tests with guinea-pigs.

THE DIETARY TREATMENT OF CONSTIPATION.

HEWES, of Boston, in the *Boston Medical and Surgical Journal* of September 17, 1903, gives excellent advice as to this plan of treatment. He emphasizes the fact that a complete diet list, providing a diet of sufficient caloric value of mixed food elements, is to be written out, emphasis being placed upon the foods of special value in constipation. As dessert, at one or two meals, depending upon the case, the patient was ordered a saucer of cooked prunes, about ten prunes at a time.

An example of the diet list which was written out for each patient at the start may be seen below. In the routine, simply the varieties of food were recorded, the quantity being to a certain extent left to the patient. With a list of this kind it is fairly safe to assume that a patient taking the usual quantities of the foods advised would get a sufficient total quantity to satisfy the normal standard of nutritive value.

The actual nutritive value of such a diet, given in prescribed quantities for each article of food, is set forth in the second part of the table appended.

TABLE I.

Diet List for Constipation.

Plain diet in the following manner, eating the usual quantity of foods presented and using the variety allowed in list:

Breakfast:

Cereal with cream and sugar—preferably cornmeal, or rye and oats.

Two soft-boiled or scrambled eggs.

Bread—preferably black bread, or pumpernickel, or rye bread, with much butter.

Fruit—apples or grapes.

Dinner:

Soup—preferably vegetable soup.

Fish or meat, or both, with salad.

Vegetables—at least two kinds, preferably spinach, cabbage, beets, turnips; potatoes, beans, or peas if desired.

Dessert of rice or bread pudding or custard—including daily a saucer of prunes.

Supper:

Bread and butter.

Cocoa.

Cold meat and vegetable salad.

Dessert of stewed fruit—apples or pears or figs. If necessary include a saucer of prunes.

Drink at least three pints of water daily.

TABLE II.

	Proteid, Gm.	Calories.	Mineral salts, Gm.
Breakfast:			
200 Gm. (about 6 oz.) porridge, oatmeal, rye, barley, Indian meal or wheat.	4–6	150–200	4
8 Gm. sugar or porridge.....	5–6	8	.001
1000 Gm. milk or porridge...	...	120–140	3
50 to 100 Gm. bread, 1 to 3 slices.....	4–7	150–300	.5
15 Gm. butter.....	.2	120	.5
2 eggs, or 50 Gm. steak or chops.....	12	150–180	.5
Fruit: oranges, apples or grapes.....	0.5–1	50	.1
Dinner:			
120 Gm. consommé or chicken broth, or potato, pea, or tomato purée with salt.....	1–5	100–200	1
100 to 200 Gm. beef, chicken broth, lamb, ham, or sweetbread.....	20–25	200–400	1
Or 200 Gm. bluefish, salmon, halibut, cod, or mackerel..	12–20	150–360	
50 Gm. potatoes.....	1.5	60	.5
100 Gm. spinach, asparagus, or squash	1	100–200	.5
75 Gm. peas, beans, macaroni, or corn.....	9–15	300	3
Custard, or ice-cream, or Indian pudding.....	6–15	150–250	1
Cheese and crackers.....	2–5	300	1
Supper:			
Bread and butter	5–7	200	1
Cocoa, one cup.....	6	150	1
Milk, one glass	8	200	3
Stewed fruit, pears, baked apples, peaches with cake, or griddle-cakes.....	3–4	200–300	.1
Approximately.....	80–130	2650–3600	21.71

Such a diet was maintained for one or two weeks. Enemata were used when necessary at the start. If at the end of the period the diet worked without aid from the enemata, as was frequently the case, the patient was instructed to continue in it, gradually cutting down the prunes and possibly to some extent the proportion of fruits or green vegetables. In this way after a time an ordinary diet with plenty of green vegetables and fruit and an occasional prune dessert was approximated in many cases as a permanent habit.

In cases which were very much the victims of drug habit for their constipation, or in all cases which did not improve after ten days to two weeks of the above diet with the prunes, prunes stewed with a certain quantity of senna were prescribed (one ounce of senna leaves placed in a cheese-cloth bag and stewed with three or four dozen prunes).

The patient was told to take a saucer of this dish for dessert once to thrice a day, according to need, in addition to his special diet. After one to three weeks the senna was omitted from the prunes (it was best to have this omitted without the knowledge of the patient if possible), and the patient continued on the regular constipation diet.

It was frequently necessary to use the senna at the start in cases which had depended much upon drugs. Given in the above way it was very easy to gradually lessen the dose while the general effect of the laxative diet was establishing itself, and the mental effect on the patient of the dosage given in this way was not at all the effect of giving a drug for laxative purposes.

In some special cases other methods, as the inclusion of fat excess in the diet, were tried. As a rule, however, the above plan was given and adhered to in all cases.

The treatment has now been tried upon 126 patients taken in routine with no selection of cases, excepting that cases with obvious pathological lesion as a probable cause of the condition, as tumor or definite disease of the alimentary tract, were sometimes excluded.

Of these 126 cases 100 were hospital and 26 private cases.

The plan was started one year ago, and all the cases included in the record have been under observation for six months or more. The result of the experiment up to date may be seen from the following:

Total number of cases not heard from 68 (all hospital cases).

Total number of cases under observation 58.

Number relieved by treatment 54.

Of the 58 cases 40 were relieved by the diet alone, including prunes.

The remaining 18 necessitated senna with the prunes at the start, but all save

four of these have finally become able to continue on the diet alone, without the senna.

In most cases the relief came at once and continued. In a few it was a matter of one to several months before the result was accomplished, and frequently slight adaptation of the diet varying on the routine plan had to be made for the special individual, as the inclusion of excess of fat or of more organic acid in the diet.

These results indicate two facts very emphatically: First, that in a very large majority of the cases of constipation which occur in the routine of practice, the chief if not the only cause or underlying condition is a failure of the individual to follow a normal physiological manner of life. Secondly, that in a large majority of all cases of constipation taken without reference to the cause or underlying condition, a complete cure, so that the patient can get along without the regular use of drugs or other artificial aids, can be established by a proper direction of régime and diet.

TROPICAL MALARIA AND ITS PROPHYLAXIS.

FERNANDO, of Colombo, in an article in the *British Medical Journal* of September 26, 1903, expresses the view that in dealing with the prevention of malaria three courses are now well recognized to be open to us, namely: (1) The extermination of the Anopheles; (2) the prevention of mosquitoes infecting man, and vice versa, by the use of curtains, mosquito-proof houses, and other measures; and (3) the systematic destruction of the parasite in man. Any of these methods, if effectively carried out, is quite competent to exterminate the disease.

The first method has been rigorously carried out in several towns during the last few years with apparently successful results, but the work has to be kept up at great cost if the good results are to be maintained. In towns which are well drained, and where the breeding grounds for the mosquito are few and far between, this method is both effective and economical, but is not at all practicable in Ceylon, India, and other rice-growing tropical countries. The low-lying lands of such countries consist of rice-fields which are periodically flooded for months together by the heavy rains. Not only are these tracts undrainable, but the peculiar agricultural industry—namely, rice cultivation—for which they are suited will not permit drainage. The cultivation of rice is known as a wet crop. The seed is sown in mud or in a puddle, and young corn for nearly two months or more requires the surface of the field to be flooded for its proper growth and maturation. Hence this important agricultural industry which is connected with the production of the food supply of the masses is one which provides excellent breeding grounds for the mosquito larvæ. As two crops are taken generally every year from each field, such breeding grounds are artificially manufactured for several months every year as an incident in the agricultural operations of the tropics. The rice-fields in Ceylon and India in malarial districts abound with the larvæ of Anopheles. But such larvæ are met with not only in the cultivated rice-fields, but also in the artificial tanks, which are specially devised for the storage of water for drinking as well as for agricultural purposes during the droughts. So great is the importance of such storage of water in droughty parts in the tropics that the building or repairing of tanks forms the starting-point of all attempts in the development of the country; but, curiously enough, these tanks themselves furnish breeding grounds for the Anopheles. It is clear then that in all rice-growing districts the destruction of the mosquito would necessitate the giving up of rice cultivation, a remedy which would be more disastrous than the disease itself. It is further stated that among Eastern nations, whether in India, Ceylon, or Java, this is the one industry which the government is continuously endeavoring to increase and foster, as from long experience the authorities have discovered that by the extension of cultivation of rice they secure not only food for the masses, but enable inhabitants to provide themselves with treatment when disease overtakes them.

The Italian government has been so much concerned by the rice-fields as active propagators of the mosquito that rice cultivation within four miles of a human habitation has been prohibited by statute. In Ceylon and India the rice-fields not only exist in the midst of villages, but the cultivator has in many instances actually to sleep on a platform in the middle of his

field during the growth of the plant at night to prevent damage and destruction to his crops by wild beasts.

But it may be asked, What about the towns and cities? Why not destroy the Anopheles pools around such places? In Ceylon, however, the large towns are remarkably free from malaria and do not require such treatment, whereas the fever prevails in the sparsely populated villages and amongst the scattered rural population. And as three-fourths of the total population of the island are distributed over the rural districts and only one-fourth form the urban population, hygienic efforts restricted to the towns will have little or no effect on the prevalence of malaria.

The process of exterminating malaria by destroying the mosquito larvæ over extensive, sparsely populated districts is neither a practical nor an economical procedure when other objections are absent; but when it is directly concerned with interference with the food supply, and even the water-supply, of the people, it becomes absolutely impossible.

Mosquito-proof houses as a method of prophylaxis are wholly inadmissible in the tropics on a large scale. With a night temperature seldom less than 80° F. such houses would be so close and hot as to render existence physically impossible. In addition to this drawback the cost of such dwellings would be prohibitive. The ordinary mud hut of the tropical peasant costs him practically nothing.

An attempt to exterminate malaria by killing the parasite in man on a large scale has been made by Koch in Java and German New Guinea. After studying tropical malaria in German East Africa, Koch came to the conclusion that this method of prophylaxis held out the greatest promise. In Java he carried out the quinine treatment in a bold and drastic manner. His method was to search for all cases of latent malaria during the period when fever was not prevalent; to treat such cases thoroughly and vigorously, and thus diminish the chances of relapses as much as possible at the commencement of the next fever season; and then during the fever season he administered large doses of quinine twice a week to the whole community as a prophylactic. In his interesting reports Koch has definitely asserted that as a result of such measures he had freed two villages from malaria in three months. The results are indeed brilliant, but his method in all its details cannot be carried out elsewhere. No community of people free from fever will tolerate all-round drugging with quinine on the off chance of escaping fever. Whilst fully realizing the importance of Koch's experiments, a modification of his methods may be adopted which, though less rigorous, is likely to give satisfactory results.

Fernando has well emphasized the fact that in the tropical fevers the parasite is not numerous in peripheral blood during the early days of the fever bout, and that the gametocyte is only met with in neglected and untreated cases of protracted fever. As the gametocyte is the only form of the parasite which can infect mosquitoes, it is obvious that there is a considerable interval of time at our disposal between a given attack of fever and the chance of mosquito infection from such an attack to kill the parasites by quinine. To put the matter in another form: In the prevention of mosquito infection in this form of fever it is unnecessary to drug a whole community with quinine; it is only necessary to treat cases of malarial fever as they occur, but such cases should be treated promptly, vigorously, and systematically.

The above conclusions, based on theoretical grounds, are borne out by practical experience. Since 1894 an experiment on a small scale has been conducted on a plantation in the Kurunegala district of Ceylon where malaria is intensely prevalent. The number of laborers on this plantation has varied from 80 to 100, and when they suffer from fever, and only then, they receive treatment with quinine in mixture form in a thorough and systematic manner. The special methods adopted in this plantation are the following: (1) Laborers, when they absent themselves from work or are otherwise suspected to be ill, are searched for and examined, and when found to suffer from malaria are at once put upon treatment. (2) Quinine is not withheld, as is constantly done in the tropics when the fever bout is over. Cases of recent recovery are kept under supervision, and are given quinine two or three times a week for a month. (3) An attempt is made to deal with chronic cases of anemia and other forms of malarial cachexia as soon as they appear.

This plantation, where prior to 1894 fever was so rife that laborers could not be obtained or kept together, has, since the above methods were adopted, become the favorite plantation of the district for the coolies. Fever amongst the laborers has decreased to a remarkable extent, but figures drawn from them are useless for comparison, as the laborers are constantly changing. For several years no case of fresh infection has occurred on the plantation.

During the last three years a new manager with his family and servant, numbering five, and the storekeeper and his servant, have lived continuously on the plantation without any attack of fever, and yet this is a part of the country which is intersected and surrounded by rice-fields on all sides, and one where in every hut Anopheles mosquitoes can be found practically all through the year. It is further added that mosquito nets or other appliances are not in use in any of the dwellings.

In tropical countries, including Ceylon, where malaria is met with, several districts are now free from this malady which were formerly infected. In examining these areas, what is remarkable is that the Anopheles is still present. This is the experience even in Europe. What, then, is the explanation of the disappearance of malaria? Surely it cannot be due to the extinction of the Anopheles, for it is still met with, and occasionally, as in parts of Calcutta, in large numbers. The conclusion seems to be this: that malaria disappears from a community or a district when quinine treatment is brought within the means of its poorest inhabitants. In most cases this desirable result is not generally attained until a district is so thoroughly developed as to enable its inhabitants to obtain permanent and profitable employment, and thus the means of obtaining efficient treatment.

In conclusion, whilst admitting that over small areas specially suited for such measures the extermination of the Anopheles may be an efficient and practicable method of dealing with malaria, in the rice-growing tropics it is wholly inadmissible. In these regions the effective treatment of the fever on the lines indicated holds out the greatest promise of success. Where quinine is now made available for the inhabitants of a malarial district in India or Ceylon no systematic effort is made for the treatment of the disease. For dealing with malaria in a district the following points should be insisted upon, namely:

1. A prompt search for cases of fever as fast as they occur, with efficient treatment. If necessary or otherwise practicable malaria should be included in the list of infectious disease whose notification to the local sanitary authority is compulsory.

2. The continued treatment of fever cases after the attack is over to prevent relapses.

3. The systematic treatment, especially during the non-fever season, of the cases of anemia and other forms of debility induced by chronic malarial poisoning.

The above measures represent the least that can be expected from a sanitary authority in the treatment of malaria in an infected district, and it is gratifying to observe that when such measures are effectively carried out a great deal will have been done to exterminate the disease. The surest prophylaxis consists in efficient treatment.

THE USE OF THE X-RAYS IN THE TREATMENT OF SEVERAL DISEASES.

The *Medical News* of October 3, 1903, contains an article on this subject by WILLIAMS in which he details very interesting experiences with this active remedial agent. One of the most instructive experiences that the author has had in the study of the use of the *x*-rays in the treatment of new growths has resulted from a group of cases in which he was able to compare the respective merits of the use of the *x*-rays and of operation. In one case an operation was done to remove a cancerous growth; three months later there was a recurrence, and a second operation was done; in less than three months a second recurrence took place; the *x*-rays were then resorted to. Fifteen months has elapsed since recovery took place following their use, and the patient is still well.

The breast cases form a special class by themselves. In those which are beyond the reach of operation relief from pain may usually be had by the use of the *x*-rays, and the progress of the growth may be delayed. In other forms, where the growth has not gone so far, the *x*-rays, if

used patiently and persistently, may accomplish surprising results, not in all cases, but certainly in a sufficient number to justify their employment where operation is declined. In cases where operation is considered it seems quite possible that by using the *x*-rays persistently and cautiously during several months the progress of some new growths in the breast might be checked, and it is not improbable that in certain of these cases the results obtained from the use of the *x*-rays would be as good as those which follow operation; that is to say, although the *x*-rays may not enable us to get rid wholly of the growth, they may give the patient as many years of life, or perhaps more, as would on the average follow the removal of the breast by operation. The author is not ready to commend the substitution of the *x*-rays for operation in these cases, but refers to this course as one which further experience may establish as wise in certain instances. It would be necessary to carry out this treatment for a long period of time, and the plan would not be devoid of risks unless the practitioner were experienced and careful in the use of the *x*-rays.

In the treatment of new growths too vigorous use of the *x*-rays must be avoided, in order not to stimulate the disease, and so cause it to spread instead of to heal, or in the larger forms of new growths to avoid setting up a toxemia that may be disastrous to the patient.

It is evident that the *x*-rays promise to afford the best method of treatment for superficial new growths, and that experience is needed, when the growths are large or deep-seated, to select the cases for which this treatment is most suitable, and that the greatest care must be exercised in order not only to avoid injurious but to obtain good results; further, that the apparatus must be good and well under the control of the practitioner.

X-ray Injuries.—There are certain dangers connected with the use of the *x*-rays. If the skin is overexposed, severe inflammation or even ulceration will follow, and these so-called "*x*-ray burns" are sometimes very difficult to heal; another danger in their use, that may occur in cases of new growth and Hodgkin's disease, is that the treatment may be pushed too rapidly and a serious toxemia result; experience and care can obviate these risks.

A word as to the limit of action, as regards the site of the disease, of this new therapeutic agent. The parts most easily affected are, of course, those near the surface, but a powerful apparatus can accomplish results that are beyond the reach of a smaller one. One of the author's patients, the site of whose disease was the interior of the chest, lost steadily in strength, color, and weight when treated with an apparatus of ordinary power, but improved after one or two exposures when treated by means of a powerful apparatus.

There are, then, two points to be kept constantly in mind when pursuing the study and use of the *x*-rays for the treatment of deeper-seated portions of the body. First, the treatment must be carried on cautiously, and in many cases persistently, for a considerable period, and results looked for in some cases only after a long interval. In some cases the treatment should be interrupted from time to time and the desired results watched for during these pauses, for the good effects of the treatment may in some instances be first observed a considerable length of time after the exposures have ceased for the time being; for instance, none may be apparent after a series of exposures given three times a week for a period of six months, and then become evident some weeks after the discontinuance of the treatment. Secondly, the patient should in all ways be under careful observation, not only as regards the action of the *x*-rays on the skin, but also as regards symptoms that are the outcome of chemical changes and indicate toxemia, for example, and also by means of the methods used to ascertain what chemical changes, if any, have taken place in the urine or the blood. In a word, careful methods should be used in carrying out and controlling the amount of the treatment, and they should be employed by practitioners who have had the best training.

The action of these rays can hardly be accounted for on the ground that they kill microörganisms; neither is it likely that all the diseases relieved by the *x*-rays are due to the latter; moreover, so far as experiments thus far have gone, the *x*-rays are not directly a good germicide. It seems more probable that these rays bring about some chemical changes which assist nature to cause healing and interfere with the development of some microörganisms.

CANCER OF THE PROSTATE.

HARRISON (*British Medical Journal,* July 4, 1903) believes that carcinoma of the prostate is far more common than is supposed. In performing 100 vasectomies the operation failed to benefit the patient in several instances for the reason that the growth proved to be carcinomatous.

Cancer of the prostate may occur at or about fifty. It is usually associated with considerable lumbar and sciatic pains. Later on it involves more or less the chain of glands in the groin, including the femoral, which it indurates. Examination by rectum not only finds the gland of stony hardness, but of marked fixidity on pressure. Slight hemorrhages are occasional, but serious alterations in the character of the urine and obstruction to catheterization are often delayed. Loss of flesh is usually noted. As a rule there is not very much intravesical projection, and what there is is of an uneven and irregular outline. It is obvious that a cystoscopic examination shows a considerable variation from the adenomatous prostate.

It is important to recognize carcinoma of the prostate and distinguish it from ordinary hypertrophy, for the reason that it may be little short of a calamity to submit a person to a prostatectomy should the enlargement be malignant. Two illustrative cases are reported in which prostatectomy was disappointing and afforded only brief temporary relief. In such cases the *x*-ray seems to offer the only means of treatment with any assurance of success.

ACETOZONE IN ATROPHIC RHINITIS.

Probaby no condition in the domain of rhinological practice is more difficult to treat successfully than atrophic rhinitis.

A preliminary report by BROWN (*Medicine,* July, 1903) on the use of acetozone in this condition shows that the time required for crust formation is considerably longer than with any other treatment used.

Benzoyl-acetyl-peroxide (acetozone) is an organic peroxide formed from the anhydrids of benzoic and acetic acids. The body itself is an inert substance. When placed in water it slowly hydrolyzes and forms other loose chemical bodies containing large amounts of atomic oxygen, to which are due its antiseptic properties. The action of acetozone upon microörganisms is that of an oxidizing agent. It seems to have no effect upon living tissue. On account of its rapid decomposition when brought in contact with organic matter, solutions made by incorporating about one-half per cent of pure acetozone in a neutral organic oil are used in an atomizer.

The treatment in the cases reported was very satisfactory.

X-RAY TREATMENT OF ACNE.

SLACK (*Atlanta Journal-Record of Medicine,* July, 1903) makes a report of four cases of acne treated with the *x*-ray. Two of the cases were entirely cured, while the other two showed very marked improvement and were nearly free from the disorder. The duration of the disease previous to the application of the *x*-ray varied from sixteen months to two years. The soft tube was used in every case at a distance from six to nine inches, and an exposure of about eight minutes. This was done three times a week, requiring from five to twelve exposures.

DANGERS OF PLUGGING IN EPISTAXIS.

LANDOUZY (*Medical Press,* July 1, 1903) draws attention to some of the contraindications of plugging the nasal fossæ in epistaxis.

Apoplexy may result from this procedure, and reference is made to a number of cases in which this has been the result, especially in the aged. In one case plugging with perchloride of iron seems to have produced erysipelas with very grave symptoms.

Nasal hemorrhage opening the vessels of the pituitary lowers the threatened arterial hypertension, frequently relieving the vessels of the brain and conducing to the safety of the patient.

The treatment should not be begun by plugging the anterior and posterior orifices. In young persons with healthy arteries this might be permissible, but plugging the nasal fossæ in aged persons is dangerous. Perchloride of iron should never be used.

Simple methods should be tried first,

as pinching the nose, elevation of the arms, cold water, key down the back, etc. Afterwards small plugs steeped in a solution of antipyrin may be applied through the anterior nares, or the nasal passages may be irrigated with hot water. These methods will be sufficient to at least moderate the hemorrhage, if not to arrest it. It is better in any case that the vessels open in the pituitary membrane than in the brain.

Dry cupping in the lumbar region, purgatives, mustard foot-baths, applications of hot water to the abdomen, should all be resorted to before plugging.

HYPERTROPHY OF THE SYNOVIAL FRINGES OF THE KNEE-JOINT.

From the cases of hypertrophy of the synovial fringes of the knee-joint which have come under his notice, ABBOTT (*Journal of the American Medical Association*, April 25, 1903) selected twelve, typical in character, the treatment of which has extended over a sufficient length of time to allow definite conclusions to be drawn regarding them. Eight of these cases were operated upon; the remaining four were treated by mechanical means.

The etiology of this affection is obscure. In a few of the cases traumatism plays an important part, while in others it has been impossible to associate injury with the beginning of the disease. A weak pronated foot is very closely associated with this disease, and while not found in all cases, it has been present in many, and the use of a plate to support the arch has been of great service in remedying the trouble in the knee-joint. In those cases attributed to trauma it may result from a sudden wrench with the joint in an unfavorable position; or pressure of the joint against some hard surface daily may cause a thickening of the tissues just posterior to the patella tendon. This thickening pushes back the fringes into the joint between the surfaces of bone, where they become pinched, and the joint motion causes a continuation of the pathological process.

Pathologically the disease consists in a nodular enlargement of the synovial fringes which project into the joint, with more or less thickening of the membrane. In the commencement of the disease only a slight increase of vascularity and a tendency to thickening of the fringes is noticeable. The membrane is slightly red around the base of the villi, and the fluid which is occasionally present is insignificant in amount and ordinarily yellowish in color. This condition is followed by an increased hypertrophy of the synovial fringes, which varies from a slight and almost imperceptible hyperplasia to a condition where the fringes resemble a small bunch of half-grown grapes.

The synovial membrane begins to encroach on the cartilages. Normally it runs into the cartilaginous border for two or three millimeters, but now the hypertrophied membrane sends out processes which creep in still farther. The fluid increases in amount in a few cases, but in the majority it is absent. Microscopically the fringes show marked dilatation and branching of the vessels, and a large increase in the amount of connective tissue which is rich in cells. It is impossible to obtain growths in culture tubes, and no trace of bacteria can be found with the microscope.

The first symptom noticed by the patient is generally some difficulty in walking. Often on extending the leg he feels a slight pain, or he may be seized with sudden pain and fall on his knees. In some cases where the fringe is pinched the injury to the membrane is so extensive that an acute attack of synovitis occurs, and the patient is obliged to remain quiet for some weeks. With rest the joint soon resumes its former condition, with, however, a slight increase in the size of the fringes. In other cases the process is more gradual, without any acute symptoms.

This condition continually grows worse, until there is partial or complete loss of function of the joint, and the patient is sometimes obliged to resort to crutches. In some cases inability to extend the leg appears, and the quadriceps extensor muscle atrophies. The patient complains of a sense of insecurity of the joint, and rarely a dull pain is present on motion.

Examination shows a slight bulging of the thickened membrane on either side of the patella tendon, generally more marked on the inner side. A little higher up the small portions of the membrane can easily be felt under the finger. The joint shows no redness or heat, except in acute attacks,

and on motion there is absence of grating. Measurements seldom show much enlargement, and movement can be carried beyond the usual limit. The ligaments are lax, and some lateral motion is present.

The treatment of these cases is mechanical and operative. And early diagnosis is very important, as it is at this time that much can be accomplished by conservative methods.

The mechanical treatment consists first in correcting any condition which may exist which tends to strain the muscles and the ligaments of the joint. The use of hot air applied at least every other day has seemed to be very beneficial. Strapping with adhesive plaster has also been of assistance, not only because of the pressure which it exerts on the membrane, but also because it limits the joint motion.

In those cases where flatfoot is present a plate will aid much in bringing the joint surfaces into a normal position, and by fixing the foot the knee is made more stable. A brace which limits movement will be found useful in cases where the ligaments are lax, as it lessens lateral motion and prevents the leg from hyperextending. Keeping the joint at rest for a long period by encasing the limb in some fixed dressing, such as plaster of Paris, has proved worthless in the author's experience, as it is impossible to exert any appreciable influence on the hypertrophied fringes by simply fixing the joint.

Many of these cases have progressed to such an extent that conservative treatment is of no avail, while in others the time required for the application of such measures must be considered, and the surgeon is obliged to adopt a more radical method.

If, when examined, the fringes have increased sufficiently to be easily detected by palpation, it is useless to subject the patient to the waste of time and expense by advising mechanical treatment. The operation presents very little difficulty and is carried out in the following manner:

The usual U-shaped incision through the skin is made, commencing at either the inner or the outer condyle, passing downward and inward to the median line, crossing the patella tendon about one inch below the patella, and finally passing upward on the front of the knee to a point opposite where the knife was first inserted. The flap is dissected back, exposing the ligaments of the joint. A lateral incision on either side of the patella is then made through the capsule and the membrane is revealed to view.

It will be found unnecessary to divide the patella tendon, as all the diseased part can be reached without so doing, and it lessens the severity of the operation. After removing the fringes the incision is closed with or without irrigating the joint, care being used to approximate the two synovial surfaces, as thus there is less liability of infection. The skin sutures are taken and the wound dressed, after which the limb is placed in plaster with the leg fully extended.

There is considerable rise in temperature in all cases during the first few days. The limb is left in plaster for two weeks, after which motion is commenced.

The twelve cases reported by the author were cured. As a result of his observations Abbott concluded that such cases should be considered independently, and not included among the other diseases of the knee-joint. A thorough microscopic examination of the tissue which was removed shows it to be simple inflammatory tissue and not due to any microörganism. While the etiology is obscure, it is evidently due to some fault in the weight-bearing structures of the lower extremity, which causes the ligaments of the joint to become lax.

In all the cases which he has examined since the matter was brought to his notice, a flattened arch has preceded the knee-joint trouble, and the use of a plate has been of great service in treating the disease. The matter of diagnosis is not difficult, although a torn cartilage somewhat resembles this condition. Examination of the cartilages was made in all the cases where operations were performed, and in all they were found intact.

It has been impossible to account for the paralysis of the quadriceps extensor muscle, which was found in three instances; but in several of the cases operated on, where it did not exist before the operation, there was found a similar condition afterward, and this was the last symptom to disappear. This shows that sometimes the condition does occur when there is very little to cause it. The question whether a case should be treated by mechanical methods, or whether it should be operated on, is a matter which must be

left to the judgment of the surgeon; as some cases which seem doubtful yield easily, while others which are apparently slight will not improve until the fringes are removed.

VENOUS STASIS AS A THERAPEUTIC AGENT.

HABS (*Münchener med. Wochenschrift,* No. 22, 1903) believes that stasis hyperemia is an active therapeutic measure in the treatment of gonorrheal arthritis, stiffness of joints following traumatism, tubercular bone and joint disease, and lesions produced by freezing. The production of stasis hyperemia is simple, painless, and without danger, and is warmly recommended by the author. Stasis hyperemia is produced in the following manner: An elastic rubber bandage is applied to the limb above the diseased area, sufficient pressure being made to obstruct the veins without interfering with the arterial circulation. In order to protect the underlying tissue from pressure, a flannel bandage or a pad of cotton is placed beneath the rubber bandage. In order to guard against a local atrophy of the muscles, the bandage should be applied at different levels during the course of the treatment. If the bandage is properly applied, the limb begins to swell gradually and presents a bluish-red discoloration, and after a half-hour slight edema appears.

The author has treated over 300 cases (200 of them being tubercular) by this method, and his method of treatment is thus presented:

1. In tubercular cases the bandage is applied twice daily for four or five hours for the first eight days; then the duration of the treatment is gradually diminished until finally only one application daily for one hour is employed. This is continued until cure results. Active hyperemia is not commended in the treatment of tubercular cases. It seems advisable to employ injections of iodoform in conjunction with the treatment by venous stasis in cases of joint effusion or joint abscesses. Large abscesses should be opened and fistulas curetted. In far advanced tubercular lesions the greater operations (resection, etc.) are indicated.

2. In gonorrheal arthritis stasis hyperemia is employed for eight or twelve hours daily. If the fever and pain subside under this treatment active hyperemia is employed in addition every third day for the purpose of producing absorption. Active hyperemia is secured by means of superheated air, hot sand-baths, and electric-light baths.

3. In cases of chronic stiffness of a joint following trauma or inflammation, venous stasis for one hour daily and active hyperemia every third day are recommended in addition to massage and mechanical treatment.

4. In chronic rheumatic arthritis active hyperemia is indicated. The limb is placed in the hot-air oven or electric-light bath for one hour, once or twice daily. In addition stasis hyperemia may be employed at times.

5. In cases of fracture with delayed union stasis hyperemia is employed to promote callous formation for two hours daily in conjunction with the mechanical treatment.

6. For the lesions produced by freezing, venous stasis is employed from one to two hours, twice daily.

TREATMENT OF BRACHIAL NEURALGIA.

WHITBY (*British Medical Journal,* Aug. 8, 1903) in the treatment of brachial neuralgia has obtained good results by the local application of the positive electrode of a constant battery current.

One case was of traumatic origin. The injury was on the right side and was followed by wasting, particularly of the biceps muscle. This was accompanied by tingling pain in the course of the ulnar nerve. Electrical stimulation restored the wasted muscles and enabled the patient to move the arm with comparative ease, but the pain proved more lasting. It was, however, always relieved for a time by treatment.

In the second case of brachial neuralgia of rheumatic origin accompanied by muscular atrophy and intense pain which had resisted all treatment, improvement under electrical treatment was surprisingly rapid and permanent.

In both cases the negative electrode was applied near the upper dorsal vertebræ, while the positive was moved over the painful parts of the shoulder and arm. The current was just of sufficient strength to cause a slight deflection of the needle of a galvanometer.

Though rest is doubtless the chief indication in these cases, there can be no reasonable doubt that electrical stimulation shortens the period of recovery.

THE VALUE OF LUMBAR PUNCTURE.

RHODES (*British Medical Journal,* July 11, 1903) in emphasizing the diagnostic and therapeutic value of lumbar puncture in cases of cerebrospinal disease, details the following points:

1. Relief of pain, headache, etc.

2. Coma is diminished, and consciousness may return after coma has been established through the increase of intracranial pressure.

3. Lumbar puncture may indicate the necessity or othewise for operation.

5. It has been a definite aid toward recovery. In several cases of post-basal meningitis, a child, apparently dying, has tided over the frequently recurring crises of dyspnea, cyanosis, associated perhaps with convulsions, and ultimately recovered, when lumbar puncture has been systematically employed to reduce the excessive intracranial pressure.

6. It may correct or confirm a diagnosis. Often post-basal meningitis can be early diagnosed from other forms of meningitis by the presence of Still's intracellular diplococci in the spinal fluid.

THYMUS ENLARGEMENT CAUSING SUDDEN DEATH.

JONES (*Archives of Pediatrics,* August, 1903) reports the case of an infant three and one-half months old, and apparently perfectly well, who suddenly, and seemingly causelessly, developed pallor and rapid breathing. This later was followed by obvious dyspnea and a prolonged crying spell, after which the child quieted down, fell asleep, and was later found dead. The thymus gland was found greatly enlarged, and the bronchial lymph nodes were markedly swollen, as were those of the mesentery.

This child exhibited a tuberculous and alcoholic family history and had suffered from slight convulsions, but the parents gave no account of laryngeal spasm. Slight evidences of rickets were found post mortem.

In regard to the cause of death in such cases, it has been held that it is due to pressure on the trachea, the heart, great vessels, or on the nerves. Paltauf denies that the cause of death is mechanical pressure, and believes that the enlarged thymus is simply one of the symptoms of a "status lymphaticus," which is characterized by a lowered vitality and unstable equilibrium and is attended by changes in the nerve center controlling the action of the heart, so that paralysis may ensue from very slight causes.

Beneke believes that sudden death with thymus enlargement may occur in three ways: First, compression of the trachea; second, laryngospasm; third, a lymphatic constitution.

"PRESSURE-POUCH" OF THE ESOPHAGUS.

BUTLIN (*British Medical Journal,* July 11, 1903) gives the following as the symptoms of value in the diagnosis of this affection:

1. Return of fragments of undigested food, not immediately after the food has been taken, but many hours or even a day or two afterward.

2. Gurgling up of gas from the throat, particularly when pressure is made on the left side of the neck low down. This symptom is peculiarly distressing to the patient. There may be also a distinct bulging in this situation when food is taken, but this is not by any means a constant symptom.

3. A bougie is arrested about nine inches from the teeth; and if a curved metal instrument is used, the end can often be felt in the posterior triangle of the neck, almost always on the left side.

Other symptoms may be present in individual cases: wasting when the pouch has attained a large size; pressure symptoms, such as cough; possibility of introducing a full-sized bougie into the stomach in the early stages of the disease. Acidity of the returned food does not in the least contraindicate the presence of a pouch.

With regard to the operation he believes that it is not more dangerous to life than the cure of the disease will justify. In every instance the operation was performed on the lines prescribed by Professor von Bergmann, as follows:

1. In order to be sure that there is no stricture of the esophagus below the opening of the pouch, a bougie should be

passed into the stomach from the mouth at the time of the operation. If this cannot be done before the wound is made in the neck, the pouch should be exposed, separated from the surrounding tissues, and drawn upward out of the wound. With a little manipulation a bougie can then be passed over its mouth.

2. If the pouch is of long standing, and if it is of large size, a soft tube should be passed from the mouth into the stomach and retained for so long as is necessary for feeding. If the patient cannot or will not permit this, or vomits up the tube, it must be passed over a guide every time food is taken, otherwise almost all the food will pass out through the wound in the neck. If this cannot be done, a tube should be introduced into the stomach through the wound in the neck and retained there until healing is nearly accomplished.

3. The less the tissues below the pouch are disturbed the better. If they are widely opened up there is liability to septic inflammation spreading down into the posterior mediastinum.

4. No attempt should be made to close the external wound however carefully the opening of the neck of the pouch has been stitched up. It should be drained by means of a soft drainage tube. On the other hand it is very desirable to close the opening into the esophagus; for although the stitches always give way at the end of three or four days, the surrounding tissues are by this time sufficiently recovered to render spreading septic inflammation behind and below the site of the pouch very much less probable.

The operation appears to result in a speedy, complete, and permanent cure of the disease.

THE PRESENT STATUS OF THE SURGERY OF THE PROSTATE GLAND.

Writing under this title THORNDIKE (*Boston Medical and Surgical Journal,* Aug. 13, 1903), while recognizing the fact that prostatics who can be comfortable under the use of the catheter should be content with this treatment, believes that all patients who do not hold their own under palliative treatment should be subjected to some operation, and that this should be performed when the inadequacy of palliative treatment is demonstrated.

Prostatectomy is the operation of choice, which should be advised only when the patient's general condition is such as to make him a fair surgical risk. This is rarely the case after sixty to sixty-five years of age. To other patients the Bottini operation can be offered as a substitute with but little risk to life, short convalescence, and such prospect of improvement as will at least do away with the necessity for the systematic use of the catheter.

DECAPSULATION OF THE KIDNEY FOR THE CURE OF BRIGHT'S DISEASE.

BLAKE (*Boston Medical and Surgical Journal,* Aug. 13, 1903) gives a preliminary report of five cases of renal decapsulation.

Two of these cases are, for the practical purposes of business and occupation, well. Two died at intervals of four days and six months after the operation, and one is not relieved. All of the cases were operated upon by two surgeons simultaneously, one decapsulating the right, the other the left kidney, thus reducing the time of operation about one-half.

In two cases the patients were more or less cyanotic and collapsed on the table. This seemed to be due to interference with respiration produced by the large rubber air cushion. With the exception of one case, the absence of postoperative shock was remarkable. The operation was always followed by a temporary diminution in the amount of urine; this disappeared in a few days. In a few days more the amount voided exceeded that passed before the operation. An increase of the blood in the urine was always demonstrable by microscopic examination, and in one case the urine was mahogany colored for several days. With two exceptions the wounds healed by first intention. Casts and cells did not show any material change after operation.

Edebohls states that before a case can be classed as a cure it must fulfil the following conditions: "The urine must remain free from albumin and casts, and the output of urea be normal, or approximately so, for at least six months after the verification of the disappearance of albumin and casts, and the patient must be free from the symptoms of chronic Bright's disease from which he or she formerly suffered." Judged by this standard,

none of the five cases here reported are cured.

ROTCH (*Archives of Pediatrics,* August, 1903) reports a case of decapsulation of both kidneys in a boy nine and one-half years old. This operation was performed because of an advanced parenchymatous nephritis which seemed to be steadily progressive.

The patient was tapped of over four liters of opalescent ascitic fluid, and was then subjected to decapsulation of both kidneys. Because of the edema of the dorsal tissues and inability to deliver the kidney outside the skin incision, the decapsulation had to be done in the depth of the wound. The operation was concluded in one and one-half hours.

Following the operation there was relief of headache, disappearance of nausea, and lessening of edema, but the patient died eighteen days after with symptoms of acute pulmonary edema and cardiac exhaustion.

SURGICAL TREATMENT OF GENERAL PURULENT PERITONITIS.

Writing on this subject ROSS (*Canadian Practitioner and Review,* August, 1903), on the basis of a large experience, believes that the first indication for the treatment of an acute general peritonitis is the removal from the peritoneal cavity of the germs and toxins produced by them, this to be done by opening and flushing out, drainage being dispensed with if the washing is thorough and there is no definite suppurative and pus-producing area left behind. Thereafter, hypodermoclysis of normal salt and rectal enemas are serviceable. Finally, opium should be given.

SUBPARIETAL INJURIES OF THE KIDNEY.

WATSON (*Boston Medical and Surgical Journal,* July 9, 1903) has collected and analyzed 660 cases of subparietal injury of the kidney. From this investigation certain facts are brought to notice which have received but little attention. One of these is the occurrence of laceration or serious injury of the kidney produced by muscular action alone, and in some instances by what seems a very inadequate degree of force. Eleven such cases are reported. Blows or falls upon the front of the abdomen have also caused laceration of the kidney. In all but two cases this was the sole result of the accident. The practical importance of this observation is to warn the surgeon not to be thrown off his guard with respect to injury of the kidney when the accident has been of this character, especially in cases in which hematuria is delayed or absent.

When a single intraperitoneal organ is injured in association with lacerated kidney, it is always on the same side as the injured kidney. There is no case in the whole series of which this is not true. In the great majority of cases it is the spleen which is involved in connection with the left kidney, and the liver with the right. When there are multiple intraperitoneal injuries, the above statement, of course, has no application. Inasmuch as the latter cases are of very rare occurrence, while injury of a single intraperitoneal organ in connection with kidney laceration is relatively frequent, this statement has a practical bearing in those cases in which associated injury of an intraperitoneal organ has been suspected, and a laparotomy having disclosed an abdominal cavity filled with blood, no time need be lost in looking for the source of the hemorrhage elsewhere than on the same side as the injured kidney. It also will lead the surgeon to enter the abdomen by incision on that side, except in rare instances in which there is uncertainty as to which kidney has been injured.

Abdominal symptoms in connection with renal injury, in the absence of intraperitoneal lesions such as are usually associated with peritonitis, occurred in eighteen cases, in eight of which operation demonstrated the absence of intraperitoneal complication, and in the other ten the symptoms subsided so rapidly as to make it reasonable to suppose the absence of such complication. Such symptoms are not infrequently seen in connection with cases of what appear to be abdominal muscular contusions only.

When these symptoms are present in cases of kidney injury complicated by intraperitoneal lesions or lacerations of the peritoneum, the following features help to distinguish them from those in which they do not represent such conditions:

In the latter—the uncomplicated ones—they are usually more marked immediately or very soon after the accident, are of rela-

tively short duration, and are not progressively severe. In the former, pain is deeper seated, rigidity and distention are greater, and are extended more over the whole abdominal cavity. The one sure sign by which injury of the peritoneum overlying the kidney can be recognized is the presence of free fluid in the abdominal cavity.

It is to be noted that there is in the series a larger number of cases in which abdominal symptoms did represent intraperitoneal complications than there is in which they did not. Furthermore, there are several recorded in which there were no abdominal symptoms, although severe, and in a few instances fatal, intraperitoneal lesions were present. The latter is illustrated in the case of a child who was run over by a cart, the wheel passing across the front of the abdomen. An hour or two later it was brought to the hospital and played about upon the floor without showing any evidence of injury for the next hour, at the end of which time there was sudden collapse, and death followed three hours later. Autopsy showed laceration of the right kidney and liver.

The duration of abdominal symptoms in uncomplicated cases and the time of their appearance varied, the appearance coming as late as the second day, while the duration was from one to six days.

There were 111 instances out of the total number of 486 uncomplicated cases in which tumor of the loin is noted as present. In 39 of them the tumor was formed by perirenal extravasation of blood, in 4 hematonephrosis, in 28 traumatic hydronephrosis, in 38 perinephric abscess, in 2 pyonephrosis. The majority of tumors, which were perirenal hematomas, appeared immediately or soon after the accident. The average time of first appearance in those in which the tumor represented hydronephrosis was considerably later than in those in which it was perinephric abscess. Increase in size of the tumor does not necessarily imply dangerous hemorrhage, provided it does not take place rapidly or continue too long. In sixteen cases of perinephric abscess, gradual increase in size of the tumor is reported to have occurred. The same was true in eight of the cases of hydronephrosis.

The nature of the tumor in a considerable number of the instances in which it was perinephric abscess was indicated by chills and rise of temperature, concurrently with or shortly after its appearance. Chills and fever, however, are mentioned in connection with a number of other cases in which no suppuration took place.

Hydronephrosis and perirenal extravasation may continue to be present for a considerable length of time without infection and suppuration occurring. This is seen in four of the former condition, two of which were present without infection for one month each, and the other two for three months each.

Hematuria is present in at least eighty per cent of all the cases, with an average duration of eight days. Absence of this symptom may be due to tearing across of the renal pelvis, ureter, or blood-vessels, disintegration of the kidney, or obstruction of the outlet of the renal pelvis. Altogether there were twenty cases in which the renal blood-vessels were involved.

Perirenal hemorrhage takes place from the parenchyma, the fibrous capsule being ruptured and allowing the blood to make its exit through the rent. It may be from the renal vessels themselves, or from the numerous small vessels of the perirenal fat. Spontaneous arrest of the hemorrhage may take place even in the former cases, due in part to the pressure exercised by the overlying peritoneum, when the latter is firmly fixed. When it is relaxed the only restraint is thrombus formation. When the capsule is not torn, the blood may coagulate within the pelvis, blocking the orifice of the ureter, interfering with the urinary function and the circulation of blood, producing great enlargement of the organ, and dissecting the fibrous capsule from its surface.

Among the causes of death, hemorrhage was the common factor. In the complicated cases, laceration of the peritoneum was the most frequent cause. Twenty-five of the 112 deaths of the 486 uncomplicated cases were due to suppuration. Anuria caused death in ten of the series. There were nine deaths referable to peritonitis in the uncomplicated cases, and five in those having injuries of the abdominal organs associated with that of the kidney.

An important influence upon the mortality is shown to have been exercised by the treatment adopted. There were 273

cases treated expectantly, with a mortality of 27 per cent; operations other than nephrectomy, 99 cases, with a mortality of 7 per cent; treated by nephrectomy, 115 cases, with a mortality of 25 per cent.

REMOTE RESULTS OF PROSTATECTOMY.

In a discussion of this subject before the Surgical Society of Lyons, reported in the *Revue de Chirurgie* (No. 7, 1903), ROCHET states that of twenty-three patients operated upon by him in the past eighteen months, five died. Of this number, however, but one was an operative death, the others surviving weeks or months after surgical intervention. Of fourteen patients observed by him for the period of twelve to fifteen months after prostatectomy, eleven were entirely cured of the vesical infection. The three in whom pyuria existed exhibited signs of renal inflammation. But one of these patients exhibited a true incontinence; six showed partial incontinence.

The case exhibiting true incontinence was one of small contracted prostate, and the operation was very difficult, attended by laceration of the vesical sphincter.

All these patients exhibited considerable betterment.

The general consensus of opinion seems to be that remote cicatricial narrowing is not to be feared, and that though nocturnal frequency may still persist, the relief to symptoms is so great that the operation should be advised when more conservative means fail.

EPIDURAL INJECTIONS IN UROLOGY.

CATHLIN (*Annales des Maladies des Organes Génito-Urinaires,* No. 15, 1903), who has published a book upon the results of epidural injections practiced by puncture of the sacral canal, contributes some extraordinary cases demonstrating the efficacy of his treatment.

It should be borne in mind that the injection is, as its name signifies, within the bony canal and external to the dura, and that the result obtained may be explained on the basis of a vertebral inhibition due to traumatism exerted upon the nerve-roots and conveyed to the medullary centers.

These results have been confirmed by many observers, and are partly to be expected in the case of genito-urinary neurotics.

Cathlin states that in diurnal and nocturnal incontinence without demonstrable local lesions he cured seventy-five per cent of the cases, and that the results are equally satisfactory in cases of false urethritis, false prostatitis, and false cystitis. Moreover, impotence and pollakiuria are equally amenable to this treatment. The method of operation will be found described in the THERAPEUTIC GAZETTE for November, 1902.

OBERST'S METHOD OF INDUCING LOCAL ANESTHESIA.

STRUTHERS (*Edinburgh Medical Journal,* August, 1903) applies this name to a method of producing anesthesia by injecting a small quantity of a relatively concentrated solution of cocaine directly into the subcutaneous tissue round the nerves supplying a part, after arresting its circulation. The cocaine acts on the nerve trunks at the level of the injection, proximal to the operation area, and the entire part distal to the injection level is rendered anesthetic.

The Oberst method is practically limited to the digits and adjoining parts, regions not well adapted to Schleich's infiltration method.

The method is easy, satisfactory, and entirely free from danger. In anesthetizing a finger, a tourniquet is first applied at its base. Soft-rubber tubing answers well; nor is great pressure needful, since circulation of the finger is readily arrested. After it is applied, 5 to 10 minims of a one-per-cent solution of cocaine is injected around each digital nerve distal to the tourniquet. After some minutes which must be allowed for the solution to act on the nerves (Struthers advises ten), the entire finger distal to the tourniquet is completely anesthetic, and operation on it from a small incision to an amputation may be done painlessly.

When the base of the finger requires operation and there is consequently no room for the application of the tourniquet on the finger itself, the constricting band may be applied at the wrist. The cocaine should then be injected on the palm and dorsum of the hand along the lines of the digital nerves.

This method was applied in more than fifty cases with completely successful results in all. In six cases where operations were required on the base of a finger or thumb, or on more than one digit, the circulation was arrested at the wrist. In all but one, a stout alcoholic, the anesthesia was satisfactory. In one case regional anesthesia was used on the penis. The rubber tubing was applied about one and a half inches behind the glans. One-per-cent cocaine was then injected along the lines of the dorsal nerves and on each side of the middle line below. In ten minutes the prepuce was completely anesthetic, and the patient was circumcised before he was aware that any cutting had been done.

FOREARM FIXATION IN INFANTS.

BROCHA (*Gazette des Hôpitaux,* No. 26, 1903; quoted in the *Centralblatt für Chirurgie,* No. 29, 1903) has observed two hundred and eight cases of this affection characterized in the main by fixation of the forearm in pronation, and a slightly flexed position, occurring usually in children under five years of age. This fixation in the position of pronation he attributes to a slight forward luxation of the head of the radius.

The method of treatment consists of flexion and supination, with direct pressure exerted on the head of the radius.

THE OCCLUSION OF THE GREATER PART OF THE INTESTINE.

VENVERTS (*Revue de Chirurgie,* 1903) reports the case of a woman subject to the operation of hysterectomy who, because of extensive adhesions, the freeing of which resulted in tearing the intestines, suffered from a fecal fistula and rapidly emaciated. Because of this a second operation was practiced, which showed that the artificial anus was placed about ten inches below the junction of the duodenum and the jejunum. An anastomosis was made between the jejunum and the transverse colon, thus occluding the greater part of the jejunum, the ileum, and ascending colon, and half of the transverse colon. This patient regained her health, though the fistula still remained open.

Lagueux notes that this is the most remarkable case of intestine occlusion on record, since the patient not only survived but gained ten pounds in six months, with not more than three feet of intestine.

THE CURABILITY OF VESICAL TUBERCULOSIS.

MOTZ (*Annales des Maladies des Organes Génito-Urinaires,* No. 14, July, 1903) reports in some detail eight cases of apparently undoubted vesical tuberculosis, which, either with or without treatment, recovered completely, and he states that he has seen many cases greatly bettered—this in corroboration of Guyon's teaching to the effect that vesical tuberculosis is quite as curable as is this disease when seated in any other portion of the body. Banzet has for many years followed cases of apparent cure, and is convinced that this cure is permanent.

Of twenty-nine cases treated by instillations of sublimate, according to Banzet six were completely cured. Of Motz's eight cases, one was subjected to curettement and five-per-cent guaiacol oil; one was treated by sublimate instillations; while six patients recovered without local vesical treatment. In five of these cases the bladder recovered permanently on the removal of a higher focus of infection (in four cases by a nephrectomy, in one case probably by a ureteral obliteration), thus showing that tuberculous ulceration of the bladder has a spontaneous tendency toward healing, provided there be no constant reinfection.

As to treatment, Motz believes that even cases of profound infection should not be given up, but that the closest attention should be devoted to the general building up of the health. Moreover, it should be remembered that primitive tubercular cystitis is extremely rare, this disease usually being secondary to infection of the kidneys, the prostate, or the seminal vesicle. Tubercular nephritis constitutes an indication for nephrectomy, even in the presence of most pronounced vesical lesions. If the prostate and vesicles are the sources of original infection the prognosis is by no means absolutely bad, since spontaneous cure is quite possible. When softening takes place, drainage should be employed in accordance with general surgical principles, and this is sometimes followed by cure.

ULCERATION OF THE STOMACH TREATED BY NERVE SECTION.

ALVAREZ (*Centralblatt für Chirurgie,* No. 29, 1903; quoted from *Médecine Moderne,* No. 19, 1903) notes that his attention was directed to the possibility of helping or curing ulceration of the stomach by nerve section by a case on which he operated for the relief of a lipoma in the neighborhood of the seventh and ninth dorsal vertebræ. This patient had suffered for two years from the exhausting pain of stomach ulceration. Following the operation for the relief of the lipoma there was hemorrhagic vomiting for some days thereafter, and prompt disappearance of all symptoms, so that the patient could eat any food in large quantities without suffering. This cure was apparently permanent, since five years later the patient was still well.

It seems possible that the curative effect in this case was incident to a division of the eighth costal nerve; hence the procedure of nerve section was formally adopted for the cure of a stomach ulcer, and with absolutely satisfactory results in this case. Six months later, however, there was a relapse, which the operator attributed to the fact that there had been a nerve regeneration.

This contribution is abstracted rather as a surgical curiosity than as representing a method to be followed.

SOME CAUSES OF FAILURE TO CURE GALL-STONES.

Under this title MAYO (*St. Paul Medical Journal,* August, 1903) notes the most common cause of symptoms after operative treatment for the relief of gall-stones is the incomplete removal of the stones. Those which lie in the gall-bladder should be easily found. When placed at the cystic duct they are somewhat more inaccessible, but can be reached without difficulty by the Robeson technique—that is, the placing of a sand-bag under the back, the high incision, and the dislocation of the liver downward and outward. This exposes the common and cystic ducts perfectly. In most of these cases cholecystectomy is indicated. If the obstruction be complete, the duct and cystic vessels are caught with curved forceps just beneath the impacted stone, the duct is then cut across, and the gall-bladder and the duct with the stones quickly removed from below upward almost by traction alone, with the occasional division of some firm adhesion to the liver.

Stones may be quiescent in the common duct, causing obscure symptoms for years, and later may become associated with one or more calculi in the cystic duct which give rise to symptoms calling for operation. This readily may lead to error, which may be avoided by exploring the ducts with the fingers in every case before opening the gall-bladder. If the gall-bladder is distended it is well to explore a second time after tapping, but before opening the gall-bladder, if attention be diverted to the possibility of calculi in the deep parts, the stones probably will be found in the common duct, which will usually be sufficiently dilated to introduce the finger into it for exploration; in many cases in no other way can we be sure the common and hepatic ducts are clear.

One source of failure of cholecystotomy to relieve symptoms is from secondary obstruction of the cystic duct preventing free drainage of the gall-bladder into the normal passages. This is usually due to an ulceration, the healing of which after removal of the stone has resulted in stricture or obstruction of the channel. It is well to excise the gall-bladder in the cases in which the cystic duct is involved. In cholecystitis drainage should be established for a long period, since if the fistula be allowed to close too quickly severe symptoms may ensue.

Since cancer is frequently secondary to stone formation, all thick-walled gall-bladders should be looked upon as suspicious, and as they are functionally useless, cholecystectomy should be done, thus perhaps curing an early cancer. Chronic pancreatitis implies long-continued drainage after cholecystotomy. At the time of operation the condition of the pancreas should always be examined into, and if found diseased the surgeon should either drain the gall-bladder for a long time or do a cholecystenterostomy with a Murphy button, in addition to removing the stones.

After cholecystotomy the gall-bladder should be attached as high up in the incision as is convenient. Persistent biliary fistula usually means obstruction of the common duct. Mayo cautions against su-

turing the gall-bladder to the skin, and notes that the margin of the incision of the gall-bladder should be turned in and drawn closely to the drainage tube by means of a purse-string suture.

There are two causes of failure to effect a perfect cure that cannot always be avoided; operative adhesions, particularly to the stomach and duodenum, which time usually relieves, but which occasionally call for operation, and the use of Cargile's membrane; and hernia, which may be avoided by making a second incision outside the working opening, close to the ribs, through which the drainage material may be brought out, thus enabling the surgeon to close the full length of the original cut.

GASTROSTOMY IN COMBINATION WITH GASTROENTEROSTOMY FOR PYLORIC OBSTRUCTION.

In 1899 Rutkowsky directed attention to the advantages to be derived from performing gastrostomy in combination with gastroenterostomy. In the cases in which the latter is indicated he recommended this procedure, on account of its simplicity and safety, while at the same time the "vicious circle" is abolished and the feeding of the patient is rendered possible immediately after operation. HAMESFAHR (*Centralblatt für Chirurgie*, No. 23, 1903) has carried out this suggestion in twelve cases of pyloric obstruction and advises its more extensive employment.

He performs an anterior gastroenterostomy and combines it with a Wölfler's gastrostomy. In performing the gastrostomy the gastrocolic ligament is divided for a distance of five to six centimeters in order to free the lesser curvature of the stomach, through which the first sutures are introduced. A small incision is then made in the stomach at a point four centimeters above and slightly to the left of the gastroenterostomy. A medium sized Nélaton catheter is passed through this incision into the distal loop of the intestine. If the surgeon now palpates the united portions of the stomach and intestine with the left and repeatedly introduces the catheter with the right hand, he speedily becomes convinced of the ease and safety with which the catheter enters the distal loop of gut. The catheter is introduced into the intestine for the distance of ten centimeters, and the stomach wall is sutured over it in the form of an oblique channel. The upper end of the gastric channel is secured to the parietal peritoneum at the upper angle of the abdominal incision by means of a few sutures.

The gastrostomy does not prolong the operation more than ten minutes.

Nourishment can be introduced through the catheter into the intestine immediately after operation without fear of producing nausea or vomiting. The starved condition of the class of patients in which this operation is indicated renders early feeding eminently desirable.

A "vicious circle" cannot occur after the combined operation.

The catheter is removed after the second or third week, and the gastric fistula is permitted to close spontaneously.

The author has performed this operation in seven cases of benign stenosis and in five cases of pyloric carcinoma. All the patients recovered, and none of them experienced any inclination to vomit.

LOCAL ANALGESIA BY ADRENALIN-EUCAINE.

BARKER (*Lancet*, July 25, 1903) naively remarks that this method of abolishing pain has, with little doubt, a future before it. He states that he believes, now that the principles which underlie it are well understood, it will be widely employed. Full credit is given to Corning for his admirable work in this direction, and attention is called to the fact that because of the rapid absorption of the injected material no operation lasting more than twenty minutes can be performed without a constant reinfiltration of the tissues and nerves.

Beta-eucaine he notes is less toxic than cocaine; both these drugs have the following drawbacks: (1) The difficulty of injecting directly through the nerve trunk and through the skin; (2) the need of employing a large quantity of the solution of 1:500 to thoroughly anesthetize a region supplied by several nerve trunks.

It is well known that anything which retards or diminishes the circulation of the blood in a part infiltrated with an analgesic agent enhances the potency of the latter. This fact suggested the possibility

of increasing the local anesthetic effect of eucaine by the injection of adrenalin, which would necessarily diminish the stream of blood in the part. It was noted that after a lapse of about twenty minutes the part thus injected with the combined drugs was quite blanched and wholly insensitive to pain, and that this loss of feeling lasted on an average about two hours. Barker has been so well satisfied with the result of his first test that he has employed the combination for several months, and with results far superior to those produced by the eucaine alone. His method of preparing the solution is as follows: To 100 cubic centimeters of boiled sterile water 0.2 gramme of beta-eucaine and 0.8 gramme of sodium chloride are added; thereafter 18 minims of adrenalin chloride (Parke, Davis & Co.) is dropped from the stoppered bottle in which this drug comes into the eucaine solution. If the bottle be corked at once, it will not spoil. This makes a solution of 1:500 eucaine and 1:100,000 of adrenalin chloride.

There were no instances of secondary hemorrhage, though a number of operations, such as those for the radical cure of hernia, were successfully performed.

CONGENITAL PHIMOSIS—NEW OPERATION.

In congenital phimosis the constriction which prevents retraction of the prepuce is caused by a tight ring of mucous membrane just inside the prepuce. In order to avoid the mutilation of circumcision WOODYATT (*Lancet,* Aug. 15, 1903) has devised an operation which consists of cutting the constriction and preventing its recurrence by the introduction of sutures. The operation has been performed in a number of cases, and the result has always been perfect.

The penis is held between the left thumb and forefinger, the prepuce is retracted as far as it will go, and then with a pair of sharp-pointed scissors held in the right hand the stricture is cut first on the right side and then on the left side. It is not necessary to slit up the mucous membrane far back, but it should be done equally on both sides. When the stricture is relieved the prepuce is retracted and the mucous membrane is separated from the glans. By introducing one suture into each cut the operation is complete. Each suture is introduced so as to make what was a longitudinal incision into a transverse one. The wounds will heal readily if left alone. If the sutures do not come away of themselves they may be removed in a week or ten days, when it will be found that the prepuce is easily retracted and replaced.

PUERPERAL SEPSIS—OPERATIVE TREATMENT.

Being impressed with the fact that, with few exceptions, puerperal sepsis is a type of lymphangitis arising in the uterus which through the absorbents produced grave lesions in the remote organs, PRYOR (*New York Medical Journal* and *Philadelphia Medical Journal,* August, 1903) decided to try a method which secures the sterilization of the original wound and accomplishes the absorption, by the affected lymphatics, of a potent yet harmless antiseptic. With this object in view, in thirty-seven cases he curetted the uterus and opened broadly the posterior cul-de-sac, packing both with iodoform gauze. This was done in the expectation of draining away pus, but in many, even the worst, cases there was nothing to drain away except serum, and yet the result was perfect. In thirty-six of the thirty-seven cases operated upon, streptococci, generally mixed with other germs, were found in the uterine cavity, while in all cases streptococci were found in the serum, lymph, or free pus from the cul-de-sac. In all cases but one it was impossible to find a single coccus of any kind at the second dressing, and they were absent in the third dressing in this exception. In the absence of any large quantities of pus in these cases the iodoform is very rapidly broken up, under the influence of heat and the chemical action of the blood serum, producing prompt local iodism, which sterilizes the pelvis. In all the cases, enteroclysis, or intravenous infusion of normal saline solution, accompanied the operation for the purpose of facilitating the elimination of iodines and toxins by the damaged kidneys.

Of the thirty-seven cases, twenty-seven of the patients had not been operated upon previously, and only one died, while ten

had been subjected to curettage before coming under the author's care and three died; thus confirming the belief in the mischievousness of mere curetting in these cases.

Not only is the mortality in this operation from this method of treatment much lower than by any other, but the morbidity is certainly less, as evidenced by three patients who have since borne children.

DIGITAL NEPHROPEXY.

GATTI (quoted in the *Annales des Maladies des Organes Génito-Urinaires,* No. 15, 1903) cites four cases of kidney stones treated successfully by a method which he considers extremely serviceable, since it is rapid, easy, and not attended by hemorrhage.

After having exposed the kidney, he passes two catgut sutures through it, at the upper and lower poles, so placed that a firm grip may be maintained on that organ during the following operation. A two-inch incision is made through the fibrous capsule of the kidney on its convex border, exactly opposite the hilum, or corner. The medullary substance of the kidney is then penetrated by the finger of the surgeon, which is driven directly to the pelvis. During the examination for calculus, it is stated there is no hemorrhage.

ENTEROSTOMY FOR FUNCTIONAL PARALYSIS OF THE INTESTINES.

FINNEY and PANCOAST (*American Medicine,* Aug. 22, 1903) call attention to two entirely different purposes, either or both of which may be accomplished by enterostomy: (1) To drain temporarily a distended intestine and allow it to regain its normal tone in cases of functional paralysis of the bowel of septic or other origin, especially in those cases following appendicitis with peritonitis. (2) To enable one to nourish a patient whose stomach and rectum are for any reason irritable and unable to retain or absorb a sufficient amount of nourishment.

In cases of appendicitis with extensive peritonitis developing symptoms of obstruction after operation, autopsy reveals the absence of mechanical obstruction, and shows that the inflammation of the peritoneum was subsiding. The distended bowel had been unable to reëstablish its peristaltic action, and the patient had succumbed to the septic poisoning.

Clinically this condition is characterized by abdominal distention, gradually increasing until the respiratory movements become greatly impeded, coupled with constant vomiting of large quantities of fluid, at first light in color and later bile-stained, becoming darker and darker until of the type known as "projectile black vomit."

There are other cases, not necessarily postoperative, in which the stomach and rectum both fail as avenues for the introduction of nourishment and medicine, and enterostomy alone will enable effectual administration of food and medicine, being comparable in its results to gastrostomy in stricture of the esophagus. In the authors' experience the administration of cathartics through an intestinal fistula has proved uniformly effectual in exciting peristalsis.

The operation of enterostomy, when quickly done under local anesthesia, is a comparatively slight one and causes little disturbance to the patient. The relief afforded thereby often enables him to withstand later more radical measures.

Enterostomy for the purpose of feeding is to be recommended especially for temporary use, and it should be resorted to under none but urgent indications; the disadvantages of an intestinal fistula being manifest. If the fistula is made for the purpose of feeding only, the method introduced by Witzel for gastrostomy is perhaps the one to be chosen. After the opening has been made a rectal tube is inserted, first in one direction and then in the other, and may usually be passed several feet either way. This will allow the escape of gas and feces from the distended bowel, and through it when necessary a considerable segment of the intestine may be irrigated. As soon as the intestine has been opened and the tube inserted a quantity of salt solution is injected in both directions, and by watching, the distal portion can usually be determined. After the distal portion has been determined the administration of stimulating or nutritive enemata can be given at once through the fistula.

The amount of fluid that can be given

in twenty-four hours and retained is surprisingly large. Generally in favorable cases peristalsis becomes quickly reëstablished, and the fistula closes spontaneously or can be closed by operation.

In doubtful cases where the immediate necessity for the establishment of a fistula does not exist, and yet where the operator has reason to fear that the operation may later become indicated, it is well before closing the abdomen to determine the loop of intestine in which the opening can be most advantageously made. This loop should be fixed by the gauze packing in order that it may be readily accessible for subsequent manipulation. Guide sutures should be inserted into the bowel wall at the point to be opened. These may be taken out without harm at any time later and the gauze removed, if it is found unnecessary to incise the bowel.

The intestinal fistula once established should be looked upon more as a mouth than as an anus. It should be used for irrigation of the intestinal canal, for the nourishment of the patient, and for the introduction of cathartics. Food introduced into the intestinal canal through the fistula has of itself a stimulating effect upon peristalsis.

THE PROPER PERINEAL PROSTATECTOMY INCISION.

SENN (*Journal of the American Medical Association,* Aug. 15, 1903) advises the perineal route in performing prostatectomy, and believes that very little is gained by attempts to render the prostate more accessible by intravesical instrumental pressure, and that such efforts are by no means always harmless. The danger from hemorrhage and accidental wounding of the peritoneum is reduced to a minimum by resorting to an incision that will expose the prostate, in the freest possible manner, to sight and touch. Senn has attempted to do this by combining the median incision by two lateral incisions, representing in outline an inverted capital Y. The median incision is made in the usual way, laying bare the membranous portion of the urethra. The lateral incisions are carried from the lower angle of the median to a point half-way between the anal margin and the tuberosity of the ischium, cutting through about the same structures as are involved in lateral operations for stone in the bladder. The wound is next deepened, largely by the use of blunt instruments, and all hemorrhage arrested as it occurs, maintaining throughout the entire operation a practically bloodless field. This will give the operator an opportunity to recognize and identify the tissues as he proceeds with the dissection. The rectum is detached until the membranous portions of the urethra and the lower segment of the prostate can be distinctly seen and felt in the apex of the deep triangular wound. By using narrow, flat, deep retractors, the rectum is pushed backward and the wound margins are retracted laterally, thus exposing freely the parts concerned in the next step of the operation.

On a grooved staff which is inserted into the bladder the membranous portion of the urethra is incised, and the grooved director of Wheelhouse inserted into the bladder; withdrawing the staff and using the director as a guide, the prostatic part of the urethra is dilated with the left index-finger, which, after it enters the bladder, serves as a blunt hook, with which the prostate is drawn gently downward and forward into the wound.

The capsule of the gland is next incised transversely, and with the opposite index-finger enucleation of the left lobe is commenced. This part of the operation is usually easy, sometimes difficult, and not infrequently impossible. Recklessness and undue violence are to be avoided.

Enucleation is often facilitated by grasping the lower part of the prostate with some clasping instrument on which traction is made during the process of enucleation. The author seldom attempts to remove the prostate in its entirety. Occasionally this can be done, but usually it will be found much easier to remove only one lobe at a time. After the removal of the left lobe, the right index-finger is inserted into the bladder and the right lobe enucleated with the left.

If it is found impracticable to remove the prostate by enucleation, morcellement must be resorted to. The finger in the bladder is almost indispensable in operating by this method; with it the parts are brought into easier reach, and it serves at the same time as a valuable guide for the use of the cutting and traction instruments. With grasping forceps portions of the gland are seized, when the neces-

sary traction is made by an assistant, while the surgeon does the cutting with blunt-pointed scissors well curved on the flat.

Complete prostatectomy in such cases is not necessary, but enough tissue can be removed to insure a free outlet for the urine, and to guard against the recurrence of the obstruction from the same cause.

Senn is decidedly in favor of a preliminary cystotomy in performing perineal prostatectomy, and it greatly facilitates the removal of the gland by enucleation or morcellement, and in the majority of cases it becomes a necessity for the treatment of coexisting inflammation of the bladder. It is better to incise the urethra and take advantage of such an opening in the bladder during the operation than to tear it accidentally, as is so often done when operators undertake the perineal prostatectomy without a preliminary cystotomy. The author preferably drains the bladder by inserting a soft-rubber drain with two oval fenestræ in the upper end. The drain is fastened in the lower angle of one of the lateral incisions. The perineal wound is drained with a strip of iodoform gauze which is brought out on the side of the rubber drain. The balance of the incision is sutured. The bladder is kept practically empty by siphonage, by connecting the perineal drain with a piece of rubber tubing, making connection with a glass tube. Through this rubber drain the bladder can be washed out daily with the proper antiseptic solutions. The iodoform gauze drain should remain at least five or six days, as its presence in the wound is of the greatest value in preventing infection by leakage or septic urine. The catheter should be kept in the bladder until the condition of the urine is such as to warrant suspension of intravesical medication.

SURGERY OF THE STOMACH.

MAYO (*Wisconsin Medical Journal*, July, 1903) states that the means of diagnosing a surgical lesion of the stomach can be classified into three groups: first, the history of the patient; secondly, the physical outlines of the stomach, including the use of the stomach-tube to demonstrate stagnation or retention of food; and thirdly, laboratory methods, including test meals, chemistry, bacteriology, and microscopy. The author's colleagues, Drs. Graham and Millet, have the records of 1100 examinations of the gastric contents in conjunction with the history and size and position of the stomach and pylorus. Of these cases, over 300 came to operation. The diagnosis based on the history and physical outlines of the stomach and the rational signs and symptoms gave a correct diagnosis in over 80 per cent of the cases. The laboratory examinations were of value in only a small percentage of cases, and then only as corroboratory evidence. Time and time again patients have been held for weeks waiting for these supposedly valuable diagnostic appearances, until the developing tumor and cachexia discouraged the enthusiastic diagnostician and sent a hopeless patient to the surgeon.

Exploratory incision is the only hope for the patient with cancer of the stomach, and a suspicion of this disease should compel the physician to explain and let the victim and his friends choose between exploration and procrastination. In developing the outlines of the stomach, an ordinary Davidson syringe and a stomach-tube are sufficient. The use of the stomach-tube is also very valuable in showing the actual results of gastric function—not of test meals necessarily, but as to whether the ordinary meal is too long retained in the stomach.

The refinements of technical diagnosis are often useless and occasionally harmful in causing delay.

There are two great groups of surgical lesions of the stomach: (1) those of benign origin, and usually inflammatory in character, with ulcer as the type; (2) cancer of the stomach.

Acute ulcer is usually diagnosticated, but its symptoms must not be taken as a standard for chronic gastric ulcer. Pain is the most characteristic symptom of the old ulcer, and the nearer the lesion to the pylorus the more cramp-like the pain, while in the duodenum it may almost exactly simulate gall-stone colic. Chronic ulcer causes slow and painful digestion. The patient is careful of his diet, and has usually one of his own, the value of which experience has taught him. The symptoms are not steady, and days or weeks of distress are followed by intervals, more or less prolonged, of comparative comfort. The pain symptom is often variable, even during the period of one day, one or

more meals giving no trouble, and the next one perhaps causing much suffering. Unlike acute ulcer, hemorrhage and vomiting are not common symptoms; the latter, a late phenomenon, is usually due to secondary contraction and obstruction of the pylorus. Acute ulcer is usually cured by rest, so also occasionally the chronic ulcer; but the latter gets its name because it has not been cured, and like chronic appendicitis and gall-stones, the same cases may be medically treated or cured a score or more times. Leube puts the death-rate of ulcer at 25 per cent, and says that if curable, four or five weeks should be the limit of required time. A very recent study of a number of cases treated at the London Hospital between 1897 and 1902 is most interesting. Two hundred and eleven had had previous attacks, or in other words were known to have had ulcers with intervals of apparent cure. In the remainder the symptoms had been more or less continuous; 18 per cent died and 42 per cent were not cured at the time of discharge—a total of 60 per cent died and not cured; and of the 40 per cent of patients supposed to be cured, their future course was unknown. The large majority of cases of chronic ulcer of the stomach are surgical patients, and after a reasonable trial of medical treatment should be so considered.

The function of the stomach is interfered with mechanically, first, by obstruction at the outlet, which prevents proper egress of the food; secondly, by disease of the pyloric portion, which interferes with its muscular action; and thirdly, by disease of the fundus of the stomach, which prevents proper reservoir function. These cases are seen in all stages, from the slight temporary interference with digestion to the most marked degree of disability.

Benign obstructions are usually the late results of the healing of a gastric ulcer, and many times the symptoms are such as to lead to the diagnosis of cancer, and no doubt many victims are allowed to die under the impression of a necessarily fatal ending.

Chronic ulcer is a disease of adult life, in this respect differing from the acute form which is most common in adolescent females. Drainage operations give marvelous relief in benign obstructions of the pylorus. Gastroenterostomy has been the operation of choice, but in certain cases the newer pyloroplastic method of Mikulicz, or the gastroduodenostomy of Finney, is also indicated, and gives in some respects even more desirable results.

The second group of cases is that in which ulcers exist in the muscular pyloric region, preventing the proper mixing of food materials. In over two hundred operations for benign disease of the stomach the author has found ulcers capable of giving symptoms requiring operation, nearly always in that segment of the stomach lying to the right of the cardiac orifice and having the lesser curvature as its superior border. Its inferior border on the greater curvature does not extend so great a distance to the left of the pylorus. Ulcer of the pyloric region gives rise to great pain and distress from the so-called "pyloric spasm." The latter is not confined to the pyloric sphincter, but to all or any part of this muscular region. The symptoms are pain and indigestion, gas, hypersecretion, etc., the "pyloric syndrome" of Hartmann. Many of these cases in time heal, and the resulting cicatrix produces the obstruction mentioned in group one. The proper surgical treatment of such cases is not settled, and no one method will apply to all cases. The dilatation is not extreme, as the obstruction is due to spasm and is essentially temporary in character. Gastroenterostomy on the cardiac side, and usually at a point directly opposite the esophageal opening, gives splendid temporary results; but with the healing of the ulcer, which quickly takes place as soon as the food is prevented from passing through the ulcerated area, the spasm relaxes and the pyloric region begins to functionate normally. The gastrointestinal fistula often contracts, or the double stomach drainage of itself gives future trouble. The plastic operations about the pylorus, so useful in benign strictures, are probably not efficient, as no matter how large the outlet, the food must still pass through the ulcerated area before reaching the pylorus; and that obstruction has no hand in the production of ulcer is shown by the typical examples in the duodenum. Excision of the ulcer itself is sometimes feasible, but unfortunately the lesion is often multiple and may be hard to detect. In some cases excision of the pyloric end of the stomach is the operation of choice, as

it not only permanently cures the condition, but also prevents the possibility of secondary malignant degeneration which has been a not infrequent occurrence.

The third group in which the reservoir function of the stomach is interfered with is usually the result of extensive ulceration and cicatricial stenosis in the body of the stomach, causing hour-glass contraction. It is interesting to note that hour-glass stenosis may be multiple, and that a contraction at the pylorus also frequently exists, so that a combination of gastrogastrostomy and gastroenterostomy is usually indicated. The so-called atonic dilatations often found in neurasthenic individuals without retention, and but little stagnation of food, and without the pyloric syndrome of Hartmann, are not benefited by operation. This is also true of gastroptosis, which the author has found to be present in over half the cases of movable kidney. Relaxed conditions of the neurasthenic state are not often permanently benefited by surgical operation.

Early operation is a prerequisite in the treatment of cancer, and the diagnostic exploratory incision is necessary. The author has operated upon 115 cancers of the stomach, of which twenty-seven were radical extirpations; five died within a month, and one later from another cause, too early to know the ultimate result. Of the twenty-one who recovered, the average length of life was over a year. It is surprising how few failed to live twelve months or more. One lived three years and seven months; several are alive now, after more than two years.

Sixty per cent of cancers are located in the pyloric portion—that is, in the movable part of the stomach. The lymphatic arrangements are the same as the vascular, and the dome of the stomach is isolated from this portion, having a different vascular and lymphatic connection. If all of the lesser curvature be removed with the corresponding lesser omentum, and all of the body and greater curvature to the left gastroepiploic artery, the results in cancer of the pylorus should nearly equal what might be expected after complete gastrectomy. The remaining portion of the stomach enables intestinal anastomosis to be made with considerable ease, and the gastric pouch rapidly enlarges to assume the function of the stomach.

Reviews.

THE PRACTICE OF OBSTETRICS. Designed for the Use of Students and Practitioners of Medicine. By J. Clifton Edgar, M.D. Price, cloth, $6.00.
Philadelphia: P. Blakiston's Son & Co., 1903.

This is decidedly the most exhaustive and most complete work on obstetrics in the English language which has been written by any single author. The volume contains no less than 1221 illustrations, and covers more than 1100 large octavo pages. All of the illustrations are well executed, and most of them are advisedly introduced, although some of them we think deal with very minute details which are hardly necessary. From an examination of the volume we are convinced that it is a most useful one for all active practitioners of obstetrics, although it seems to us that it is too exhaustive for the medical student. The advice which is given throughout its pages represents the views held by the best obstetricians of the present day. We note with interest that the author believes that the physician should, whenever possible, employ sterilized rubber gloves in obstetrical procedures. This is much more necessary on the part of the average country practitioner than for the professional obstetrician, since the former necessarily must expose his hands to various forms of infections which the professional obstetrician can avoid. We feel confident that if this advice is carried out by the family practitioner, the danger of sepsis will be very materially diminished.

Where any doubt exists on the part of the physician as to the presence of pelvic deformities, Dr. Edgar advocates resorting to a thorough pelvic examination under the influence of an anesthetic, inserting the entire hand into the pelvis, if necessary.

Dr. Edgar's views as to the proper treatment of puerperal eclampsia have already been expressed in the THERAPEUTIC GAZETTE, and therefore do not need to be quoted at this time. In puerperal fever the author believes, first, in the institution of supporting measures, and secondly, in the employment of cold for the purpose of diminishing high temperature. While recognizing the fact that the use of antistreptococcic serum is still on trial, he nevertheless favors it. His view, however, as to the employment of Credé's

ointment in the treatment of this condition is an equally judicial one. He recognizes that in this desperate condition anything which promises good and seems incapable of doing harm should be employed, but he evidently does not believe that very excellent results will follow its use. After all, as he well points out, the preventive treatment of puerperal sepsis is the treatment which should be most interesting to the physician, and the employment of complete aseptic precautions prior to attending a case of labor is usually sufficient to prevent this disastrous complication. In this connection he once more urges the use of sterile rubber gloves and of a sterile operating gown and duck suit, so that the patient cannot be infected by the physician's clothes. In regard to the use of the vaginal douche prior to labor, he is distinctly opposed to it, unless the physician is convinced that some septic material is present in the vagina.

If any one of our readers wishes to obtain a complete and exhaustive guide to the practice of obstetrics, he cannot do better than purchase this most excellent work, which comes to us fresh from the large clinical opportunities of its able author. Considering the excellence of the illustrations and the quality of the text, and the form in which the publisher has developed the book, it is certainly an excellent investment at a comparatively small cost.

A Handbook of the Diseases of the Eye and Their Treatment. By Henry R. Swanzy, A.M., M.B., F.R.C.S.I., Surgeon to the Royal Victoria Eye and Ear Hospital, and Ophthalmic Surgeon to the Adelaide Hospital, Dublin; Ex-President of the Ophthalmological Society of the United Kingdom. Eighth Edition, Revised, with 168 Illustrations and Zephyr Card of Holmgren's Tests.
Philadelphia: P. Blakiston's Son & Co., 1903.

The eighth edition of Swanzy's book maintains and increases the reputation of the author as a teacher of ophthalmology and as a clear and concise writer. The exhaustion of the seventh edition demonstrates the appreciation of students of ophthalmology of the previous edition. Wherever the English language is spoken and medicine is practiced, Swanzy's Handbook is favorably known. In America it has long been one of the standard textbooks and has made for the author many warm admirers, and contributed not a little to the students' knowledge of ophthalmology. The eighth edition is enlarged by the addition of the following material, the mention of which gives at once to those familiar with the seventh edition an idea of its manifold attractions: In Chapter IV, a Description of Grating Keratitis, Keratitis Aspergillina, Recurrent Abrasions of the Cornea, and of Injuries of the Cornea caused by Blows and Burns; in Chapter VII, a more detailed account of Herpes Zoster Ophthalmicus, a description of Lymphangioides of the Eyelids, and of Pflueger's Method of Tarsorrhaphy; in Chapter VIII, a more detailed account of Kuhnt's Method of Extirpation of the Lacrimal Sac; in Chapter X, in view of the vast importance of the subject, a more detailed account of Sympathetic Ophthalmitis; in Chapter XIV, a more detailed account of the Use of the Magnet for Foreign Bodies in the Eye; in Chapter XVI, a more detailed account of Tumors of the Optic Nerve; in Chapter XVII, a description of the Eye Symptoms attendant upon Myasthenia Gravis; in Chapter XVIII, a description of P. W. Maxwell's Operation for Shrunken Socket and of Kroenlein's Temporary Resection of the Outer Wall of the Orbit for Orbital Tumors, etc.; in Chapter XIX, a description of Amaurotic Family Idiocy.

The bibliography is fairly full, but it is a sad comment on the literary industry of American clinicians or of the character of their work, or possibly of the limited resources of the author, that out of 275 references only seven are to papers by American writers, and Hotz is called Holtz!

H. F. H.

The Principles and Practice of Hydrotherapy. A Guide to the Application of Water in Disease. For Students and Practitioners. By Simon Baruch, M.D. Second Edition, Revised and Enlarged.
New York: William Wood & Co., 1903.

When the first edition of Dr. Baruch's book upon hydrotherapy appeared some years ago we welcomed it as being the only ethical work upon this subject with which we were acquainted in the English language, and it still remains by long odds the best summary of our knowledge of this method of treating disease. Dr. Baruch has been known for so many years as an enthusiastic supporter of all those methods of hydrotherapy which are rational that we are not surprised to find that his enthusiasm is still maintained and that it is shown on almost every page of his book.

The present edition embodies a considerable amount of information which has been gathered from practical experience since his first edition appeared.

A good rule for physicians to follow is never to give a drug when a remedial measure other than a drug may be employed, and Dr. Baruch's book upon Hydrotherapy aids physicians in carrying out this rule. While he is naturally very enthusiastic concerning the good results which follow the proper application of hydrotherapeutic measures, he is by no means wedded to one particular method.

As long as the physician bears in mind the underlying factors which must be considered in the treatment of disease, it is sufficient if the actual measures vary somewhat from those which have been introduced chiefly by Continental physicians.

Even if the physician is so situated that it is impossible to obtain cumbersome apparatus for the administration of various baths, we wish to impress upon him the fact that this volume contains much text and many illustrations which will enable him to employ cold and heat for the cure of disease even in houses where the means of the patient are so limited that any considerable expenditure is out of the question. Indeed, it may be said that the majority of the illustrations show the physician how, even in the most remote country districts, excellent results can be obtained.

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. By Charles H. May, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York; Ophthalmic Surgeon to the French Hospital, New York; Consulting Ophthalmologist to the Red Cross Hospital, New York; Adjunct Ophthalmic Surgeon to Mt. Sinai Hospital, New York, etc. Third Edition, Revised. With 275 Original Illustrations, including 16 Plates.
New York: William Wood & Co., 1903.

The history of the demand for this book is one of the strongest evidences of its excellence. It is tersely announced on the back of the title page: First edition, August, 1900; Second edition, September, 1901; reprinted October, 1901; reprinted July, 1902; third edition, August, 1903; and now, October, 1903, the revised third edition! Truly a remarkable record, and one of which Dr. May has every reason to be proud. The reason for its popularity is easy to find. The book is authoritative, comprehensive, of moderate size and moderate price. The reviewer has no adverse criticism to make of the text. The italicizing of all important words and phrases detracts from the appearance of the pages and the facility of reading them. One is apt to skip the intermediate words and lines and absorb only those ideas that are expressed in words printed in italics. This, however, is a matter of judgment and taste. A few of the illustrations are good, but many are crude, and without their legends they would be meaningless. For example, on page 46, Fig. 74 might be abscess of the lacrimal sac, or blepharitis or purulent conjunctivitis; and the two photographs opposite page 102 are misleading. These are minor faults and may be easily corrected in future editions.

H. F. H.

A DICTIONARY OF MEDICAL SCIENCES. By Robley Dunglison, M.D., LL.D. Twenty-third Edition, Thoroughly Revised by Thomas L. Stedman, A.M., M.D. Price, $8.00.
Philadelphia and New York: Lea Brothers & Co., 1903.

Dunglison's Medical Dictionary, in its twenty-third edition, bids fair to remain a powerful rival of other dictionaries which are much younger and which are not more complete. Many years ago it was practically the only medical dictionary which was recognized upon this side of the Atlantic, and it was considered a standard in England as well. As Dr. Stedman says in his preface to the twenty-third edition: "A book which has held its own for nearly three-quarters of a century needs no apology." A distinguishing feature of the various editions of this dictionary has been the explanatory fulness and the encyclopedic nature of its definitions. The editor has endeavored to maintain this characteristic, modifying old definitions slightly in the direction of greater conciseness, and introducing new terms wherever their introduction seemed wise. The present edition has more than 1500 new definitions, a large number of which belong to the new science of immunity, while others belong to that still more recent subject, namely, the use of various light rays in the treatment of disease. Prof. Leonard Pearson has seen to the révision of the veterinary terms, and Dr. H. H. Burchard to those dealing with dentistry. Wherever it is necessary for

the elucidation of a definition to have an illustration, illustrations are included. Many of them in this edition are anatomical. If the old adage, "the proof of the pudding is in the eating," still holds good, Dunglison's Medical Dictionary must be for years to come, under this last revision, a work of which the American medical profession may well continue to be proud.

A TEXT-BOOK OF HISTOLOGY, INCLUDING MICROSCOPIC TECHNIQUE. By Dr. Philipp Stöhr. Fifth American from the Tenth German Edition. Translated by Dr. Emma L. Bilstein. Edited with Additions by Dr. Alfred Schaper. Price, $3.00.
Philadelphia: P. Blakiston's Son & Co., 1903.

When the first edition of this book was sent to the THERAPEUTIC GAZETTE for notice we stated that it was at once not only a standard, so far as its text was concerned, but also a work which was exceedingly well illustrated, and which seemed in every way to meet the needs of students of medicine who were desirous of studying this subject. The number of illustrations is very great, amounting to 353. Fifty of these are new, and a number of them are in colors. Five new chapters have been added, upon the spleen, upon the urinary bladder, upon the seminal passages, upon the formation of glands, and upon the development of the hair. Opportunity has also been taken by the author and editor to carefully revise the text wherever such revision was needed.

A SYSTEM OF PHYSIOLOGIC THERAPEUTICS. Edited by S. Solis Cohen, A.M., M.D. Volume VIII: Rest, Mental Therapeutics, Suggestion. By Francis X. Dercum, M.D., Ph.D. Price, $2.50.
Philadelphia: P. Blakiston's Son & Co., 1903.

Earlier volumes of this series have already been reviewed favorably in these columns. The present volume, as its title indicates, is entirely the work of Dr. Dercum, who is one of the best known and ablest neurologists in the United States, and who has brought to the preparation of his text a long practical experience in the treatment of nervous affections, both organic and functional. In order that the importance of rest as a therapeutic agent may be emphasized, he has utilized no less than 158 out of 318 pages of text in a discussion of the various conditions in which rest, local or general, proves of the greatest possible value in the treatment of disease. Following this, in Part II, and covering less than 90 pages, is the text devoted to the therapeutics of mental diseases by measures other than drugs. The third and last part of the book is devoted to the subject of Suggestion. He discusses pythonism, Shamanism, magnetism, mesmerism, hypnotism, metallo-therapeutics, Perkins's tractors, the mind cure, the faith cure, and Eddyism. It must not be supposed from this that Dr. Dercum is a believer in the efficacy of these various immaterial remedial measures. So far as Eddyism or Christian science is concerned, Dr. Dercum states that it is more than a passing fad, it is a great and actual danger; for the denial of disease, the neglect of all medical treatment, the defiance of all sanitary regulations, make the so-called Christian scientist not only dangerous to himself and to his family, but also to his neighbors. This is by long odds one of the most practical volumes which has appeared under Dr. Cohen's editorial supervision.

A LABORATORY GUIDE IN URINALYSIS AND TOXICOLOGY. By R. A. Witthaus, A.M., M.D. Fifth Edition.
New York: William Wood & Co., 1903.

To those practitioners who have graduated at the Medical Department of Cornell University this little laboratory guide is probably familiar. It is essentially what its name indicates, namely, a series of pages devoted to the details which must be followed in carrying on ordinary methods of qualitative and quantitative analysis as it is commonly taught to students. In other words, it is a condensed manual of laboratory chemistry. Dr. Witthaus's reputation as a teacher and as a toxicologist is so high that the purchaser can rest assured that he is obtaining in this fifth edition all that is needed for the laboratory tests which are commonly followed by students in their course of instruction.

HYPNOTISM: ITS HISTORY, PRACTICE, AND THEORY. By J. Milne Bramwell, M.B., C.M. Price, 18 shillings.
London: Grant & Richards, 1903.

This is quite an exhaustive work upon a somewhat important subject, which nevertheless possesses less interest to American physicians than it does to the French school, which is continually in contact with individuals who because of the peculiarities of their nervous organism lend themselves more readily than do

members of the Anglo-Saxon race to hypnotic suggestion. It is interesting to see in the references which close the book what a large number of them deal with French literature, although the references to English and German literature are by no means scanty. The book is divided into fifteen chapters with an appendix, and these chapters deal, first, with an introduction to the subject, then with a description of its history, and then with the method of inducing and terminating hypnosis. The following chapters are devoted to the subject of the susceptibility of individuals to hypnosis, the experimental phenomena of hypnosis, the management of hypnotic experiments, the different stages of hypnotism, hypnosis in animals, hypnosis in medicine and surgery, and hypnotic theories. The closing chapters deal with the so-called dangers of hypnosis; a summary concerning hypnosis in general and with the references which we have referred to. Mr. Bramwell has thoroughly exhausted his subject, and has presented to those who are interested in this somewhat unusual medical subject an exhaustive treatise upon a process of cure which at the present time does not take very high rank in the minds of practical physicians in this country.

Correspondence.

LONDON LETTER.

By Geo. F. Still, M.D., F.R.C.P.

Amongst the many testimonies to the difficulty of curing epilepsy is the growth of colonies for epileptics. Quite recently the first rate-supported epileptic colony in this country has been opened at Ewell, near London, and another due largely to private munificence has just been made ready for use near Manchester. I suppose that this disease must be reckoned amongst the most disappointing in its course; as we all know, there are many cases in which bromides seem to have little influence beyond reducing the number of fits, perhaps to a very slight degree, and other drugs may be equally unsuccessful; any new suggestion for treatment will therefore be welcomed, and no doubt many will be glad to try the very simple method which has recently been put forward by Dr. Campbell Thomson. He points out that fits are often modified by various mental conditions, and that this fact may be turned to practical use; the patient may be taught to inhibit his fits. Some patients are aware that they can prevent an attack when they feel it coming on, by "fighting against it." This power is to be cultivated. Dr. Thomson therefore recommends that definite instructions should be given to the patient as to how to proceed when he feels the approach of a fit. Patients seldom have fits when their attention is fully occupied, and with this purpose of securing the attention he advises that they should grasp one arm as tightly as possible, setting their whole mind on this action. This is advised quite irrespective of the character of the aura; perhaps the time-honored method of pulling a loop of string tight around the arm in cases in which an aura is usually found to ascend the arm may produce its inhibitive result similarly by its effect on the mind, rather than by any local virtue. The other method he proposes is that the patient should make a strong effort to remember all that occurs during the beginning of the fit before consciousness is lost. This no doubt acts in a similar way to the previous method; it compels the patient to concentrate his attention and so wards off the attack. Obviously these suggestions can apply only to those cases in which the patient has some symptoms, however brief, to forewarn him of the attack, but that they are sometimes useful Dr. Thomson has found by experience, as in one case in which a patient was able to inhibit as many as eleven out of twenty-eight attacks.

There can hardly be anything very revolutionary in regard to the therapeutics of syphilis, but Mr. Jonathan Hutchinson is always so interesting in his utterances on this subject that I make no apology for abstracting a few of his remarks made in some lectures recently delivered at the Postgraduate Polyclinic, and since published in the *Clinical Journal*. He emphasized the fact that the primary sore is by no means always indurated, and also that induration is not necessarily proof of syphilitic character, for on the mucous membrane of the penis the application of caustic may cause such induration. The infection of syphilis may enter apparently without any breach of surface, and almost

certainly without any obvious chancre, for surgeons have acquired the disease from a prick in operating on a syphilitic patient or in midwifery practice without any chancre at any time, and without even any local sore sufficient to arouse a suspicion of its nature. Mr. Hutchinson said that a chancre will disappear spontaneously in most cases in four to six weeks, but of course under mercury it disappears much more rapidly; a curious fact is the reappearance and reinduration of the chancre if mercury is stopped after a few weeks, without any fresh exposure to infection. Mercury, he said, will prevent the occurrence of secondary symptoms with perhaps one exception, the sore throat. Mercurial treatment should not only be begun as early as possible, but should also be pushed as far as can be borne; the only troubles likely to arise from the drug being salivation and diarrhea. The latter can be prevented by regulating the diet carefully throughout the period of treatment, particularly by forbidding all fruit and green vegetables, and if necessary by giving some opium. In the secondary stage of the disease mercury is to be used, not iodides, unless there is bone mischief. Mr. Hutchinson believes that in this stage patients are sometimes actually made worse by iodides.

Amongst the various annual meetings of scientific bodies the recent congress at Liverpool in connection with the Royal Institute of Public Health was of practical interest to medical men. It was held under the presidency of the Earl of Derby, K.G. In the section on preventive medicine Dr. J. S. Cameron gave an opening address in which he pointed out how greatly the mortality amongst infants was affected each year by the character of the summer. In the summer of last year (1902) the weather was wet and cool; holiday-makers grumbled, but the infant mortality for the third quarter of that year fell enormously below the usual average. Quoting from the Registrar-General's reports, he said "the mortality of infants measured by the proportion of deaths under one year of age to registered births was 125 per 1000, the average in the ten preceding third quarters having been 197. Compared with the mean rates in the ten preceding third quarters the mortality of infants under one year of age showed a decrease of 36.5 per cent, that of persons between one year and sixty years of age a decrease of 12.2 per cent, and that of persons aged sixty years and upwards a decrease of 3.4 per cent." He asked, "Why should we not be able with a hose-pipe and a cleansing yard and a sterilized milk depot to do something to lessen the tremendous mortality amongst children which takes place every autumn?" The latter part of this question has already received some answer in the efforts of some of the municipal bodies to supply sterilized or pasteurized milk for infant feeding at very cheap rates. Certainly it is high time for some steps to be taken when, as he stated, an improvement of more than 14 per cent in our general death-rate during twenty-five years (1875 to 1900) is accompanied by an improvement of only 5 per cent in the death-rate amongst infants.

As I close this letter the medical world in London is beginning to awake from its summer sleep; every hospital with a medical school is looking forward to an inaugural function of some sort, including in most cases a reunion of its old students; and every medical society is arranging its programme for the session. Amongst the various students' societies some offer attractions not less than those of the more recognized scientific bodies; in particular I notice that at University College Hospital the Students' Medical Society is to open with an address by Mr. Jonathan Hutchinson on "Logic and Leprosy." One wonders whether logic is salt fish; but even if it is, an address on this subject from so keen an observer will be no *obiter dictum*.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Dr. Reclus has just published a book on the use of cocaine in surgery. He wrote a book on this subject in 1896, but so many mistakes as to the method used have been made that he thinks it necessary to describe his method again. All the cases of death which have been noticed after the use of cocaine are due to carelessness. He used cocaine 7000 times up to 1900 without having had so much as an alarm. This shows how useful it can be. Dr. Reclus now uses a half-per-cent solution,

and finds that he can thus inject as much as 20 centigrammes of cocaine. The injection should always be made while the patient is lying down, and it is well to give him a cup of coffee with some whiskey while the operation is being performed. The patient should not get up after the operation is over until he has taken a cup of milk or some broth. Such precautions are indispensable. Dr. Reclus remarks that the injection should be made while the needle is being pushed through the derma, the latter remaining in this layer of the skin. Other injections should be made in the various tissues. One of the most important parts of the work is that in which he describes operations on the anal region, and especially dilatation of the sphincter. Curved needles are found useful to anesthetize the mucous membrane, and a complete circle is drawn around the anus. The muscle itself is injected with a straight needle five or six times, and the operation can then be carried out without causing any pain.

In certain cases of cancer it is found necessary to make injections of camphor as well as of morphine, and to avoid making two injections it is well to find some means of combining the two in the same formula. The *Presse Médicale* publishes the following prescription, in which morphine and camphor are to be found in oil.

> Camphor, 1 gramme;
> Crystallized morphine, 0.10 centigramme;
> Pure oleic acid, q. s. to dissolve.

Add a sufficient amount of sterilized olive oil washed with alcohol to make 10 cubic centimeters. One cubic centimeter contains 0.10 centigramme of camphor and 0.01 centigramme of morphine.

Barlow's disease, or infantile scorbutus, is being found in France much more frequently than formerly. Dr. Rochon has published statistics on this subject which show this increase. Only one case was seen on an average until 1898; in the next three years there were two cases annually; and in 1902 there were seventeen cases, and twelve in the first semester of 1903. This is partly due to the fact that physicians have learnt to recognize Barlow's disease, and perhaps also because sterilized milk and artificial foods are given more frequently than formerly. The latter is the principal cause of this disease, but the destruction of citric acid in milk when heated is a most important one.

The physician of the St. Charalamb Hospital at Smyrna, Asia Minor, has been trying recently in cases of intermittent fever some arsenical compounds with quinine furnished him by Merck. The latter were arseniate and arsenite of quinine. These drugs were generally supposed to be toxic, and only a few milligrammes were given at a time. Dr. Bénaky has given as much as a gramme and a half in one day without observing untoward results, and a number of cases of intermittent fever were very quickly improved by this treatment. Remittent fever was also treated in this manner, the results being most satisfactory.

Dr. Jewaselme, physician of the Paris hospitals, strongly recommends the use of nitrate of silver in the treatment of impetigo. One of his pupils, Dr. Jacobsohn, has studied the subject in his thesis and advocates the following technique: If only vesicles exist, they should be cut open and the skin underneath treated, but when crusts have formed it is necessary to remove the latter by cataplasms of starch or the steam spray, or even simple compresses dipped in hot water. Alibour water, which contains sulphate of copper and of zinc, is strongly recommended by Sabourand for this purpose, the solution being weakened by adding some water to it. Nitrate of silver is then applied upon the raw surface, preferably by using the stick, or else by employing a 1:10 or 1:20 solution. It is rarely necessary to use this a second time. Some pain is caused by the preparation, but it soon disappears; as for the darkening of the skin, this is but temporary and disappears after four or five days. Jacobsohn remarks that Bockhardt's impetigo is not modified by this treatment, the lesions being too deep seated. As for impetiginous eczema, such a treatment can only act on the secondary infections, and may sometimes aggravate the primary lesion.

A new drug, called valerobromine, and discovered by Legrand, is being used in France as a good substitute for valerianate of ammonia and the bromides. The numerous disadvantages of these two drugs are too well known to need to be repeated here. Valerobromine is a bromovalerianate of soda. This drug slows the action of the heart and also respiration without modifying its rhythm. The reflex activity of the brain and medulla is dimin-

ished. It can be readily understood in what cases this preparation can be used. The drug is sold in a solution containing 55 centigrammes of valerobromine for every teaspoonful. The usual dose is two to four teaspoonfuls daily, and it is taken in some sugar and water. It has a rather pleasant taste.

HAMBURG LETTER.

By Lawrence Hendee, M.D.

Hamburg, as it is not a university town, and has several large hospitals, offers more clinical material and work to the visiting physician than any other place at this time. In speaking of Hamburg one generally has in mind the Neues Krankenhaus at Eppendorf, as that is at present the newest, best equipped, and largest of the Hamburg hospitals.

At the Neues Krankenhaus, Professor Herman Lenhard, who is the medical director and has the first medical service with about sixteen pavilions under his care, is doing a great deal of interesting work. Although he is an "internist," he is doing a great deal of lung surgery, his operative work being principally on gangrene and pyothorax. In his lung cases he has had a great deal of success. I have seen several cases of gangrene operated on in the past few weeks, and each case showed remarkable improvement following the operation. His operation on the gangrene cases is divided into two parts. In his first operation he opens the pleural cavity, making a section through as many ribs as is necessary to render the gangrenous area fully accessible. He then tampons the wound with iodoform gauze—waiting from three to five days for firm granulations to form between the pleura and edges of the wound, thus walling off the general pleural cavity. The secondary operation consists principally in the cauterization, with the Paquelin cautery, of the entire gangrenous area, or as much as is possible to reach, followed immediately by iodoform gauze tamponing. His after-treatment of the wound consists in the daily change of the iodoform gauze tampon without irrigation of any kind, the wound being allowed to heal by granulations from the bottom.

The extent to which Professor Lenhard carries his cauterization may be better understood by citing one case in which he cauterized nearly the entire upper half of the superior lobe of the left lung, carrying his cautery practically to the apex behind the axillary vessels and brachial plexus. Following the operation for a day or two slight hemoptysis may occur, but usually does not amount to more than the mere staining of the sputum. There is also noticed a rapid decrease in the amount, with improvement of the character, of the expectoration. In some cases the expectoration practically ceased in a few weeks' time.

In his pyothorax cases he first makes an opening into the pleural cavity by the resection of a part of the rib and dresses with drainage by a rubber tube. As soon as the wound is granulating, usually from three to five days, he renews the rubber tube and seals the wound around the drainage tube, making it air-tight with a heavy collodion dressing. The drainage tube is then connected with a water vacuum apparatus by means of which a constant suction is kept on the abscess cavity by the vacuum jar, thus keeping up continuous drainage, and, as he claims, the suction also tends to draw the lung down and so help to fill up the cavity. By this method the discharge stops usually completely in from ten to twenty days. The vacuum apparatus consists of a large glass vacuum jar, connected on one side with a water vacuum jet, and on the other with the tube which joins it to the drainage tube. The jar also has attached a V-shaped tube filled with mercury, which acts as an indicator of the amount of vacuum present. With a fair-sized jar and rapidly running water-jet he has made the apparatus operate at the same time on several different cases. As soon as the jar is filled it is emptied and started again.

In his lung work Professor Lenhard uses the Roentgen ray freely as a confirmatory means of diagnosis, and especially in tuberculosis and gangrene, in accurately locating the diseased areas.

He has practically abandoned the use of the Widal reaction in his typhoid cases because of its unreliability, as it occurs in so many conditions other than typhoid. He now makes a culture from the blood of the patient to see whether the typhoid bacillus is present, and on its presence or absence depends the absolute diagnosis.

His method of making the blood cultures is as follows: From ten to twenty drops of the patient's blood are taken and mixed with agar-agar and then plated. The plates are then placed in the thermostat for about twenty-four hours, then removed, and the colonies counted. It is interesting to note that during the height of the fever the colonies appear in the greatest number, and as the fever abates the colonies decrease. If a true relapse occurs the colonies reappear, the number depending upon the severity of the relapse.

His cases of meningitis and cerebrospinal meningitis occurring primarily, or secondarily as complications to other diseases, especially typhoid fever and pneumonia, he treats by lumbar puncture, the amount of fluid withdrawn varying from 30 cubic centimeters to 200 cubic centimeters or more. The operation is repeated as often as the mental condition and delirium seem to indicate it. It seems to almost immediately relieve the mental condition and nervous symptoms due to the meningitis; though the relief from a single operation is as a rule only temporary, its frequent repetition seems to almost control these symptoms.

The Neues Krankenhaus has among its many equipments one for the complete and continuous immersion in water of patients who from paralysis or some other cause would soon suffer from decubitus if kept in an ordinary bed. For this purpose two rooms in the Bad-haus are used —one for the men, and the other for the women. These rooms are equipped with large tanks about eight feet long, four to four and a half wide, and three and a half feet deep. These are filled with water at a temperature of about 100° F., and the patients are suspended in the tanks so that the entire body except the head, shoulders and arms is immersed. The water is changed twice a day, and more often if necessary. There are several cases now which have been kept in continuous immersion from one and a half to two years. One patient, a wood-carver by trade, with paralysis of the lower extremities and loss of control of rectum and bladder, has been in the bath for two years. He has had a little platform built across the tank in front of him on which he keeps his carving tools and materials, plying his trade as though he was well and strong.

The department of pathological anatomy exhibits a great deal of interesting material daily. The autopsy work is under the direct charge of Fraenkel, who is the prosector. So far this year, from January 1 to September 1, there have been from 1450 to 1500 autopsies performed, and covering a great variety of conditions. Every day one sees from five to eight autopsies in the anatomy room. The method of conducting the autopsies makes them easy to see and study. The assistant from whose pavilion the subject came performs the autopsy under the direction of Fraenkel. This is only on the medical side—on the surgical side the assistants are not allowed to conduct the autopsy, the work being done by the pathological assistants. Each subject is accompanied by a complete history of the case. At 1 P.M. the entire hospital staff, both medical and surgical, go to the anatomy rooms and the autopsies begin. Each patient being examined, a general discussion follows by those interested in the case. The surgical work, under Koumel and Siek, aside from showing excellent equipment of the operating-rooms and the variety of the cases, is not for several reasons of particular interest or instructive.

The Hafen Krankenhaus, which has recently changed its scope of work and become purely an accident and police hospital, affords considerable material in the line of fractures. Here one can see fractures of all varieties, from the simplest forms to fractured and dislocated vertebræ.

In general surgery at present one can get a great deal of benefit from following Lowenstein's work both at the Bethesda Krankenhaus and the Hafen Krankenhaus, in both of which places he has the surgical service.

While the Neues Krankenhaus at Eppendorf at present affords the most material and greatest interest, yet in a short while it will be rivaled by the Allegemeines Krankenhaus St. Georg, which is being rebuilt on the pavilion plan, though differing somewhat from the Eppendorf Krankenhaus. When rebuilt it will have a slightly larger capacity than the latter place, besides offering more work in genito-urinary diseases and the venereal diseases of women; especially in the latter, as it has in connection the wards for prostitutes, under the police regulations.